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MONEY AND CAPITAL FLOWS IN A GLOBAL ECONOMY

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The Globalization of Finance

Alan Greenspan

As a result of very rapid increases in telecommunications and computer-based technologies and products, a dramatic expansion in cross-border financial flows and within countries has emerged. The pace has become truly remarkable. These technology-based developments have so expanded the breadth and depth of markets that governments, even reluctant ones, increasingly have felt they have had little alternative but to deregulate and free up internal credit and financial markets.

In recent years global economic integration has accelerated on a multitude of fronts. While trade liberalization, which has been ongoing for a longer period, has continued, more dramatic changes have occurred in the financial sphere.

World financial markets undoubtedly are far more efficient today than ever before. Changes in communications and information technology, and the new instruments and risk-management techniques they have made possible, enable an ever wider range of financial and nonfinancial firms today to manage their financial risks more effectively. As a consequence, they can now concentrate on managing the economic risks associated with their primary businesses.

The solid profitability of new financial products in the face of their huge proliferation attests to the increasing effectiveness of financial markets in facilitating the flow of trade and direct investment, which are so patently contributing to ever higher standards of living around the world. Complex financial instruments—derivative instruments, in one form or another—are being developed to take advantage of the gains in communications and information technology. Such instruments would not have flourished as they have without the technological advances of the past several decades. They could not be priced properly, the markets they involve could not be arbitraged properly, and

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Alan Greenspan is Chairman of the Federal Reserve Board. This paper is an edited version of his keynote address at the Cato Institute's 15th Annual Monetary Conference, October 14, 1997.

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the risks they give rise to could not be managed at all, to say nothing of properly, without high-powered data processing and communications capabilities.

New Challenges

Still, for central bankers with responsibilities for financial market stability, the new technologies and new instruments have presented new challenges. Some argue that market dynamics have been altered in ways that increase the likelihood of significant market disruptions. Whatever the merits of this argument, there is a clear sense that the new technologies, and the financial instruments and techniques they have made possible, have strengthened interdependencies between markets and market participants, both within and across national boundaries. As a result, a disturbance in one market segment or one country is likely to be transmitted far more rapidly throughout the world economy than was evident in previous eras.

In earlier generations information moved slowly, constrained by the primitive state of communications. Financial crises in the early 19th century, for example, particularly those associated with the Napoleonic Wars, were often related to military and other events in faraway places. An investor's speculative position could be wiped out by a military setback, and he might not even know about it for days or even weeks, which, from the perspective of central banking today, might be considered bliss.

As the 19th century unfolded, communications speeded up. By the turn of the century, events moved more rapidly, but their speed was at most a crawl by the standard of today's financial markets. The environment now facing the world's central banks—and, of course, private participants in financial markets as well—is characterized by instant communication.

It is worthwhile to trace the roots of this extraordinary expansion of global finance, to assess its benefits and risks, and to suggest some avenues that can usefully be explored in order to contain some of its potentially adverse consequences.

The Roots of Globalization

A global financial system, of course, is not an end in itself. It is the institutional structure that has been developed over the centuries to facilitate the production of goods and services. Accordingly, we can better understand the evolution of today's burgeoning global financial markets by parsing the extraordinary changes that have emerged, in the past century or more, in what we conventionally call the real

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side of economies: the production of goods and services. The same technological forces currently driving finance were first evident in the production process and have had a profound effect on what we produce, how we produce it, and how it is financed. Technological change or, more generally, ideas have significantly altered the nature of output so that it has become increasingly conceptual and less physical. A much smaller proportion of the measured real gross domestic product constitutes physical bulk today than in past generations.

The increasing substitution of concepts for physical effort in the creation of economic value also has affected how we produce; computer-assisted design systems, machine tools, and inventory control systems provide examples. Offices are now routinely outfitted with high-speed information-processing technology. Because the accretion of knowledge is, with rare exceptions, irreversible, this trend almost surely will continue into the next century and beyond. Value creation at the turn of the 21st century will surely involve the transmission of information and ideas, generally over complex telecommunication networks. That development will create considerably greater flexibility of where services are produced and where employees do their work. A century earlier, transportation of goods to their most value-creating locations served the same purpose for an economy whose value creation still rested heavily on physical, bulky output.

Not unexpectedly, as goods and services have moved across borders, the necessity to finance them has increased dramatically. But what is particularly startling is how large the expansion in cross-border finance has become, relative to the trade it finances. To be sure, much cross-border finance supports investment portfolios, doubtless some largely speculative. But, at bottom, even they are part of the support systems for efficient international movement of goods and services.

The rapid expansion in cross-border banking and finance should not be surprising given the extent to which low-cost information processing and communications technology have improved the ability of customers in one part of the world to avail themselves of borrowing, depositing, or risk-management opportunities offered anywhere in the world on a real-time basis.

Benefits and Risks of Global Finance

These developments enhance the process whereby an excess of saving over investment in one country finds an appropriate outlet in another. In short, they facilitate the drive to equate risk-adjusted rates of return on investments worldwide. They thereby improve the

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worldwide allocation of scarce capital and, in the process, engender a huge increase in risk dispersion and hedging opportunities.

But there is still evidence of less than full arbitrage of risk-adjusted rates of return on a worldwide basis. This suggests the potential for a far larger world financial system than currently exists. If we can resist protectionist pressures in our societies in the financial arena as well as in the interchange of goods and services, we can look forward to the benefits of the international division of labor on a much larger scale in the 21st century.

What we do not know for sure, but strongly suspect, is that the accelerating expansion of global finance may be indispensable to the continued rapid growth in world trade in goods and services. It is becoming increasingly evident that many layers of financial intermediation will be required if we are to capture the full benefits of our advances in finance. Certainly, the emergence of a highly liquid foreign exchange market has facilitated basic forex transactions, and the availability of more complex hedging strategies enables producers and investors to achieve their desired risk positions. This owes largely to the ability of modern financial products to unbundle complex risks in ways that enable each counterparty to choose the combination of risks necessary to advance its business strategy, and to eschew those that do not. This process enhances cross-border trade in goods and services, facilitates cross-border portfolio investment strategies, enhances the lower-cost financing of real capital formation on a worldwide basis, and, hence, leads to an expansion of international trade and rising standards of living.

But achieving those benefits surely will require the maintenance of a stable macroeconomic environment. An environment conducive to stable product prices and to maintaining sustainable economic growth has become a prime responsibility of governments and, of course, central banks. It was not always thus. In the last comparable period of open international trade a century ago, the gold standard prevailed. The roles of central banks, where they existed (remember the United States did not have one), were then quite different from today.

International stabilization was implemented by more or less automatic gold flows from those financial markets where conditions were lax to those where liquidity was in short supply. To some, myself included, the system appears to have worked rather well. To others, the gold standard was perceived as too rigid or unstable, and in any event the inability to finance discretionary policy, both monetary and fiscal, led first to a further compromise of the gold standard system after World War I, and by the 1930s it had been essentially abandoned.

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The fiat money systems that emerged have given considerable power and responsibility to central banks to manage the sovereign credit of nations. Under a gold standard, money creation was at the limit tied to changes in gold reserves. The discretionary range of monetary policy was relatively narrow. Today's central banks have the capability of creating or destroying unlimited supplies of money and credit.

Clearly, how well we take our responsibilities in this modern world has profound implications for participants in financial markets. We provide the backdrop against which participants make their decisions. As a consequence, it is incumbent upon us to endeavor to produce the same noninflationary environment as existed a century ago, if we seek maximum sustainable growth. In this regard, doubtless, the most important development that has occurred in recent years has been the shift from an environment of inflationary expectations built into both business planning and financial contracts toward an environment of lower inflation. It is important that that progress continue and that we maintain a credible long-run commitment to price stability.

While there can be little doubt that the extraordinary changes in global finance on balance have been beneficial in facilitating significant improvements in economic structures and living standards throughout the world, they also have the potential for some negative consequences. In fact, while the speed of transmission of positive economic events has been an important plus for the world economy in recent years, it is becoming increasingly obvious, as evidenced by recent events in Thailand and its neighbors and several years ago in Mexico, that significant macroeconomic policy mistakes also reverberate around the world at a prodigious pace. In any event, technological progress is not reversible. We must learn to live with it.

In the context of rapid changes affecting financial markets, disruptions are inevitable. The turmoil in the European Exchange Rate mechanism in 1992, the plunge in the exchange value of the Mexican peso at the end of 1994 and early 1995, and the recent sharp exchange rate adjustments in a number of Asian economies have shown how the new world of financial trading can punish policy misalignments, actual or perceived, with amazing alacrity. This is new. Even as recently as 15 or 20 years ago, the size of the international financial system was a fraction of what it is today. Contagion effects were more limited, and, thus, breakdowns carried fewer negative consequences. In both new and old environments, the economic consequences of disruptions are minimized if they are not further compounded by financial instability associated with underlying inflation trends.

Maintaining Financial Stability

The recent financial turmoil in some Asian financial markets, and similar events elsewhere previously, confirm that in a world of increas-

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ing capital mobility there is a premium on governments maintaining sound macroeconomic policies and allowing exchange rates to provide appropriate signals for the broader pricing structure of the economy.

These countries became vulnerable as markets became increasingly aware of a buildup of excesses, including overvalued exchange rates, bulging current account deficits, and sharp increases in asset values. In many cases, these were the consequence of poor investment judgments in seeking to employ huge increases in portfolios for investment. In some cases, these excesses were fed by unsound real estate and other lending activity by various financial institutions in these countries, which, in turn, undermined the soundness of these countries' financial systems. As a consequence, these countries lost the confidence of both domestic and international investors, with resulting disturbances in their financial markets.

The resort to capital controls to deal with financial market disturbances of the sort a number of emerging economies have experienced would be a step backwards from the trend toward financial market liberalization, and in the end would not be effective. The maintenance of financial stability in an environment of global capital markets, therefore, calls for greater attention by governments to the soundness of public policy.

Governments are beginning to recognize that the release of timely and accurate economic and financial data is a critical element to the maintenance of financial stability. We do not know what the appropriate amount of disclosure is, but it is pretty clear from the Mexican experience in 1994 and the recent Thai experience that the level of disclosure was too little. More comprehensive public information on the financial condition of a country, including current data on commitments by governments to buy or sell currencies in the future and on nonperforming loans of a country's financial institutions, would allow investors—both domestic and international—to make more rational investment decisions. Such disclosure would help to avoid sudden and sharp reversals in the investment positions of investors once they become aware of the true status of a country's and a banking system's financial health. More timely and more comprehensive disclosure of financial data also would help sensitize the principal economic policymakers of a country to the potential emerging threats to its financial stability.

Thus, as international financial markets continue to expand, central banks have twin objectives: achieving macroeconomic stability and a safe and sound financial system that can take advantage of stability while exploiting the inevitable new technological advances.

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The changing dynamics of modern global financial systems also require that central banks address the inevitable increase of systemic risk. It is probably fair to say that the very efficiency of global financial markets, engendered by the rapid proliferation of financial products, also has the capability of transmitting mistakes at a far faster pace throughout the financial system in ways that were unknown a generation ago, and not even remotely imagined in the 19th century.

Today's technology enables single individuals to initiate massive transactions with very rapid execution. Clearly, not only has the productivity of global finance increased markedly, but so, obviously, has the ability to generate losses at a previously inconceivable rate.

Moreover, increasing global financial efficiency, by creating the mechanisms for mistakes to ricochet throughout the global financial system, has patently increased the potential for systemic risk. Why not then, one might ask, bar or contain the expansion of global finance by capital controls, transaction taxes, or other market-inhibiting initiatives? Why not return to the less hectic and seemingly less threatening markets of, say, the 1950s?

Endeavoring to thwart technological advance and new knowledge and innovation through the erection of barriers to the spread of knowledge would, as history amply demonstrates, have large, often adverse, unintended consequences. Suppressed markets in one location would be rapidly displaced by others outside the reach of government controls and taxes. Of greater importance, risk taking, so indispensable to the creation of wealth, would undoubtedly be curbed, to the detriment of rising living standards. We cannot turn back the clock on technology—and we should not try to do so.

Rather, we should recognize that, if it is technology that has imparted the current stress to markets, technology can be employed to contain it. Enhancements to financial institutions' internal risk-management systems arguably constitute the most effective countermeasure to the increased potential instability of the global financial system. Improving the efficiency of the world's payment systems is clearly another.

The availability of new technology and new derivative financial instruments clearly has facilitated new, more rigorous approaches to the conceptualization, measurement, and management of risk for such systems. There are, however, limitations to the statistical models used in such systems owing to the necessity of overly simplifying assumptions. Hence, human judgments, based on analytically looser but far more realistic evaluations of what the future may hold, are of critical importance in risk management. Although a sophisticated understanding of statistical modeling techniques is important to risk management,

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an intimate knowledge of the markets in which an institution trades and of the customers it serves is turning out to be far more important.

In these and other ways, we must assure that our rapidly changing global financial system retains the capacity to contain market shocks. This is a never-ending process that requires never-ending vigilance.

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International Financial Crises: Myths and Realities

Anna J. Schwartz

International transmission of financial crises under the gold standard was a well-understood phenomenon. Changes in the gold, monetary, capital, and trade flows from one country affected prices, incomes, and output in other countries. To prevent international transmission, it was necessary to abandon the gold standard. Under floating exchange rates, the economic links between one country and others are weaker. We should not expect international transmission in such an exchange-rate regime.

Financial crises and exchange-rate crises may be interconnected. Under the gold standard, banking crises could lead to currency crises and devaluation, as happened in 1931. In recent experience, in emerging countries that peg their exchange rates, currency crises occur when internal economic conditions—unsound monetary and fiscal policies—are incompatible with external conditions set for the currency. Problems of the banking system may become apparent after the currency crisis. Few emerging countries have reformed their banking structures or created the proper mix of regulation, oversight, and market discipline to prevent continued instability.

The question is whether an individual country that has mismanaged its affairs will precipitate an international financial crisis. Two myths have propagated the view that the question has an affirmative answer. One myth is that the individual country's loss of creditworthiness has a tequila effect. The supposed tequila effect is that other countries without the problems of the troubled country are unfairly tarnished as also subject to those problems. In this way, it is said, contagion spreads the crisis from its initial source to other innocent victims.

The second myth is that a bailout of the troubled country is essential. The rationale is again the idea of contagion. Failure to organize a

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bailout will create an international financial crisis by a domino effect. Rescuing the troubled country saves the rest of the world from unwarranted financial collapse.

The Myth of Contagion

Let's see if we can puncture the myths. Is it true that the market will withdraw its support not only from a country which has financial problems that the market has at some point become aware of but also from other countries in the region that do not share those problems? We can examine the recent turmoil in Southeast Asia for one example. No one doubts that Thailand's plight that led to the plunge in the Thai baht on July 2nd, 1997 was due to its own unwise policies: a growing current-account deficit, excessive short-term foreign borrowing, a banking sector weighed down by speculative property loans, corrupt government and business practices. To show that Thailand spread contagion, however, it would be necessary to demonstrate that otherwise sound economies suffered the Thai fate.

Were the sharp moves in foreign-exchange markets that followed the fall of the baht—as the Indonesian rupiah, the Malaysian ringgit, and the Philippine peso slipped their pegs—an overreaction by investors that belied sound conditions in each of these economies? Such a conclusion lacks credibility.

To reduce inflation and keep it low, each of these countries pegged the exchange rate at a fixed value to that of the dollar or a basket of currencies, with the idea of achieving an inflation rate comparable to that of the dollar or the currency basket.

In today's world of highly mobile capital and deep capital markets, a pegged exchange rate signifying a low inflation policy attracts large capital inflows from abroad. That is what happened to the Southeast Asian economies. At the start, the exchange-rate peg and declining inflation gave the investment climate enormous drawing power. However, while the pegged nominal exchange rate was fixed, the real exchange rate appreciated with growing capital inflows. Widening of the current-account deficit typically accompanied an appreciation of the real exchange rate, which made imports cheap and exports expensive. As the current-account deficit mounted as a percentage of GDP, confidence in the economy deteriorated. Moreover, if the capital that was attracted from abroad was not used productively, the inflow became the basis for nonperforming loans by domestic banks, some of which might be state owned.

Because local lenders harbored doubts about the future value of the domestic currency, as seen in a risk premium on domestic securities,

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nonfinancial firms and governments of these countries were tempted to issue lower-interest-bearing debt denominated in foreign currencies. In fact, in each country, companies borrowed in dollars but earned revenue in local currencies. Those companies are now vulnerable to the increase in the burden of their foreign indebtedness given their limited ability to repay it.

Finally, the foreign-exchange reserves of the countries were far from ample. To defend the exchange rate, the central bank would have had to tighten monetary policy to convince the market that it would not devalue. To tighten, however, would restrict economic growth and exacerbate the problems of distressed financial institutions.

The foreign-exchange market summed up these concerns about the Southeast Asian countries by selling off their currencies. Stock market declines have matched the currency declines. It was not contagion from Thailand, however, that made the countries vulnerable to a financial crisis. They were vulnerable because of their home-grown economic problems.

Another frequently cited example of supposed contagion is the experience of Argentina in 1995 after the devaluation of the Mexican peso in 1994. Argentina adopted a currency-board-like arrangement in March 1991, establishing one-to-one convertibility of the peso and the U.S. dollar. The arrangement succeeded in reducing inflation and imposing fiscal discipline. Private capital inflows followed. Although the central bank had regulatory powers, no great improvement of the banking sector with undercapitalized institutions was achieved. An institutional weakness of a currency board arrangement is that it cannot act as a lender of last resort to inject liquidity into a banking system under stress. In Argentina the central bank was in no position to ameliorate the problematic banking sector. Assistance to the banking system was provided by two trust funds established for this purpose.

The conventional description of what happened in Argentina after the Mexican problems surfaced is that domestic bank depositors became concerned about the health of the economy, withdrew their deposits, and converted pesos into dollars, producing a sharp contraction in the money supply. As a result, GDP in 1995 fell more than 5 percent and unemployment rose from 10 to 17 percent. The public sector reverted to marked deficit. This is described as contagion. In my view, banks in Argentina were weak constituents of the economy. Confidence in the banks vanished because many were bankrupt. Forty-five out of 205 were closed or merged in 1995. It did not require the Mexican troubles to alert domestic residents to the doubtful safety of their deposits.

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It seems ludicrous to believe that financial troubles in a Mexico or a Thailand can trigger a calamity of global proportions. In Mexico's checkered past, despite the number of times it has lived through financial fiascos, it has never undermined the world's finances. The collapse of the 1824–25 boom in London in Mexican and South American mining shares and government bonds resulted in wealth losses for British investors in those securities. Is this a result that should cause financial regulators worry?

The Bailout Myth

The second myth is that a bailout is required if a country fails to pursue sound fiscal and monetary policies. The script for this prescription was written at the Halifax Summit in June 1995. The IMF was urged to "establish a new standing procedure—'Emergency Financing Mechanism'—which would provide faster access to Fund arrangements with strong conditionality and larger upfront disbursements in crisis situations." Thailand has provided the immediate occasion for an emergency multibillion dollar loan bailout to which the IMF, other international lenders, and regional Asian governments have contributed.

But if there is no proof of a spillover effect from Thailand to other Southeast Asian countries, much less to the rest of the world, and the external repercussions are limited to wealth losses by investors in advanced countries, why is the IMF engaged in this activity?

It is ironic that the Mexican bailout of 1995 inspired the model of what needs to be done. The Clinton administration after some false starts orchestrated a $50 billion rescue package—it is not certain that Mexico in fact obtained the full amount—so there was a delay of many weeks in arranging the rescue. Hence the emphasis on a standing procedure and faster access to funds. For Thailand, the bailout, however, was much smaller than the Mexican one.

The first question to ask is: For whose benefit was the Mexican rescue arranged? Is there any doubt that the loan package was designed to pay dollars to Americans and other nationals who invested in *Tesobonos* and *Cetes* and dollar-denominated loans to Mexican nonfinancial firms? Is that the reason emergency loans are needed? To eliminate risk from investment in high-yielding foreign assets?

Treasury Secretary Robert Rubin, one of the architects of the Mexican bailout, apparently has had second thoughts about bailouts. He was reported as saying at a business forum in Seattle last September that the people in countries that pursue unsound economic policies pay a heavy cost for those mistakes—slower growth, government

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austerity, and unemployment. But U.S.-backed bailouts protect investors who lent money to governments or private-sector institutions, not the people who suffer the consequences of unsound policies. Now, however, Secretary Rubin advocates exposing investors to a greater risk of losing money because that would induce them to cut back on bad investments (reported in Wessel 1997b). This is like Robert McNamara, long after the fact, regretting his support for the Vietnam War.

Although Secretary Rubin did not refer to moral hazard, that was the point of his remarks. The question of moral hazard was, however, raised by Federal Reserve Chairman Alan Greenspan at the Kansas City Federal Reserve Bank Conference in Jackson Hole, Wyoming, which convened before Rubin made his remarks. Greenspan noted that if investors can count on bailouts, they would have an incentive to take "reckless and irresponsible risks." He advocated limiting bailouts "for only the rarest of disasters." Was Thailand an example of such a disaster? Jeffrey Sachs at the same conference suggested that it was a crisis only for people who "are going to lose money." So, as in the Mexican example, is this the reason for a bailout? Stanley Fischer defended the bailout. Otherwise, in his view, "You punish three policymakers . . . and 60 million [Thai] people."[1]

In the Mexican case, it was the bailout that punished 100 million people who gained nothing. IMF conditionality notwithstanding, in the Thai case, the rescue package, rather than benefiting the 60 million, can end up in the hands of politically connected speculators who will bail out their money-losing ventures.

Conclusion

The way to ensure global financial stability is for each global financial institution to monitor and control risk in managing its own internal affairs; for the home central bank to preserve the payments system by providing liquidity in the event of a stock market crash and by preventing both banking panics and forbearance to undercapitalized banks; and for each country to conduct stable monetary and fiscal policies. If there are slipups and an individual country endures a financial crisis, floating exchange rates will preclude international transmission effects.

Glib references to spillovers from disturbances that originate elsewhere are common in the current literature on international financial crises. The truth is that it is not necessary to invoke spillovers to

[1]The remarks by Greenspan, Sachs, and Fischer were reported in Wessel (1997a: A2).

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account for multicountry financial disturbances. Capital flight from countries with similar unsustainable policies is not evidence of contagion.

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How to Avoid International Financial Crises

Leland B. Yeager

Polar Arrangements and Compromise Systems

Financial crises of the kind experienced in Mexico and East Asia repeat speculative episodes experienced within the European Monetary System and earlier under the Bretton Woods system and still earlier, as in 1931, when pegged exchange rates came under attack. What needs to be said about such crises is much the same, I'm afraid, as I have been saying for 45 years or so. But I'll try to add something new.

The story of minor events and rumors triggering major repercussions is old stuff. Although chain reactions may be morbidly fascinating, the details are less important than fragility of the institutional arrangements. In explaining why a house of cards collapses, it is diversionary to stress someone's cough or the rumble of a train. Yet as Jacques Ellul (1967: 53–63) observes, the public has an appetite for the latest news, dramatically portrayed; and this appetite crowds out attention to fundamentals.

What sets the stage for currency crises is a lame compromise between the two extremes of full-fledged monetary unification and freely floating exchange rates between independent currencies. Each of these polar arrangements has advantages and disadvantages discussed in the abundant literature on optimum currency areas. Merely having disadvantages does not condemn a system. The central lesson of economics is that having more of one good thing costs having less of others and that choices must be made in view of these costs.

Despite its particular disadvantages, each polar arrangement has a certain logic of its own. We do not experience speculative capital

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flights across the boundaries of the individual United States. Within the country, no question arises of converting one currency into another nor of whether today's parity will still prevail tomorrow. Nor do exchange-rate crises plague freely floating currencies. None occurs as defined in the dictionary: a relatively sudden turning point at which a disease, for example, changes sharply for worse or better.

True enough, a floating currency may suffer chronic ill health, even decades-long depreciation in purchasing power and foreign-exchange value. But this condition is not a crisis. The required remedy, an internal one, may sometimes be politically difficult to apply; but it is fairly well understood, thanks to the quantity theory of money.

Of course, not all the requisites for economic health are financial ones. "Real" factors are vital to growth in productivity and output. These include institutions, morality, and the ethos of society. Government favoritism, pressures, and corruption reportedly enter into the East Asian story, including implicit guarantees and other nonmarket influences operating on banks and other lenders and borrowers. But assessing these real factors would go beyond my present topic.

Here we must focus on the incoherence of trying to keep exchange rates fixed between distinct currencies, each of which is separately managed by its home country's monetary authority. This attempt to have the best of both polar worlds defined the Bretton Woods system. In some respects it combines the worst of both. It is vulnerable to one-way-option speculation. When a change in a fixed rate seems likely or possible, speculators face an almost heads-I-win-tails-I-break-even bet, winning if the expected change occurs and losing only a little if it is somehow avoided. Hence the massive speculation sometimes experienced and the massive official intervention undertaken to defend the fixed rate. These observations are old stuff, of course. The remarkable thing is how often policymakers fail to heed them.

Nowadays, as an alternative to the Bretton Woods compromise, currency boards are recommended (Walters and Hanke 1992). A currency board operates near the currency-unification pole: the board fixes the exchange rate of the domestic currency, supposedly forever, against one foreign currency or a basket of several and makes that rate defensible by holding foreign-currency reserves worth at least 100 percent of domestic money (narrowly defined, as specified below). The currency board can never run out of reserves with which to defend the rate. Besides having the advantages of currency unification (almost), the system keeps most of the seigniorage from money issue for the home country, since its board holds its foreign reserves in readily marketable interest-bearing securities. (If, in contrast, foreign

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currency actually circulated in the country, its foreign issuer would reap the seigniorage.)

The domestic money supply responds to the balance of payments, and the "automatic" balance-of-payments adjustment mechanism characteristic of currency unification (and theoretically characteristic of a full-fledged gold standard) operates.

The typical currency board holds foreign reserves worth 100 percent or more not of the entire domestic money supply, including private bank deposits, but only of paper money and any other base or high-powered money issued by or essentially on behalf of itself. These money issues of its own are the only kind that the board is required to redeem in foreign exchange. Unlike pegging of the Bretton Woods type, this type is secure, or it can be if the board disregards the situation of other domestic financial institutions. The commercial banks are responsible for conducting their affairs prudently enough to keep their own deposits (and banknotes, if any) redeemable in base money.

What happens, however, if the banks have been imprudent or have innocently suffered some misfortune? The currency board might be tempted to rescue them by lending to them or otherwise providing them with additional domestic base money. Creating it, the board shrinks the percentage of foreign reserves against its own liabilities. The domestic currency becomes potentially exposed, after all, to one-way-option bets on its devaluation.

This possibility surfaced in Argentina early in 1995, as I understand the story, in the wake of the Mexican crisis. Previously, the Convertibility Law of March 1991 had established the peso at parity with the U.S. dollar and had drastically cut inflation. This reform, along with restructuring of the private sector, had helped bolster investors' confidence and attract capital inflows. These, along with a "real" appreciation of the peso, had contributed to a current-account deficit.

When the crisis struck, reversal of the capital flows

> reduced the foreign exchange reserves from over $14 billion at the end of 1994 to under $9 billion in March 1995 and domestic currency bank deposits fell by about one-fifth. . . . A substantial easing of reserve requirements helped the banks cope with the sudden withdrawal of deposits. The impact of reserve losses on the money supply was further cushioned by an expansion of dollar-denominated government paper as backing for the monetary base. Finally, the reserves were rebuilt by substantial borrowing, with foreign official creditors providing over $3-1/2 billion in 1995 and public sector issuance of international bonds amounting to $5 billion [Bank for International Settlements 1996: 42].

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Thus the worry that the authorities would rescue the banks by loosening the constraints of the currency-board system was partially borne out. But only partially. The peso's parity with the dollar endured. Argentina tolerated an episode of sharply increased real interest rates, tight credit, and deep recession. These conditions helped improve the foreign-trade balance. Confidence returned and business recovered, industrial production recovering in 1996. As things worked out, the Argentine authorities resisted the temptation to rescue the banks by actually abandoning the currency-board system.

In the summer of 1997 rumors occasionally circulated that even Hong Kong might abandon or modify its currency-board system and allow its dollar to depreciate. Yet reserves seemed ample, especially since they might be supplemented in case of necessity by the foreign-exchange reserves of China.

Still another supposed compromise between the polar extremes of independent floating currencies and monetary unification is *managed* floating of independent currencies: official intervention will not resist exchange-rate changes required by fundamentals but will smooth out fluctuations due to random short-term mismatchings of supply and demand and to destabilizing speculation. This verbally attractive prospectus is an old combination of nice-sounding words rather than a concrete combination of coherent institutions and policies. And this interventionist solution is bedeviled by "big-player" effects, explained below. The old proposals for letting exchange rates float, but only within bands or target zones, deserve the same description: they are hardly more than superficially attractive combinations of words.

Compromise systems exhibit a frequent problem of interventionism: some interventions cause disruptions appearing to necessitate further interventions. Something similar can be true when interventions are undone: mere partial liberalization may leave controls in effect whose perverse consequences appear to argue for halting or even reversing the liberalization. Perhaps other and sounder compromises between the two polar exchange-rate systems are available than those I have mentioned, but I do not know of any.

Capital Movements

All crises of one-way-option speculation involve capital movements, of course. Speculative outflows of recent years, perhaps especially those from Mexico, Argentina, and Thailand, had been preceded by not particularly speculative capital inflows. These had been more or less predicated on the perception that the destination country had made itself attractive to investors by reforming its earlier bad ways.

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Under a fixed exchange rate, even one maintained by a currency board, an overall balance-of-payments surplus due to capital inflows tends to expand the country's monetary base and broader money supplies and to feed a boom or even inflation. Sterilization against these monetary effects is scarcely feasible on a large scale and for a long time. Even though thus imported from abroad, monetary expansion is painful to reverse. This ratchet effect is one characteristic of the Bretton Woods system.

Capital movements among parts of a unified monetary area are rather different. They do not cause creation of base money in the place of destination. Base and broader money acquired there has flowed out of the capital-exporting parts of the unified area, with its *total* money supply unchanged (perhaps with minor qualifications about different reserve ratios of different banks). No big player—the central bank—has to decide whether to allow capital flows to expand and contract local money supplies or to try to resist these responses by sterilization; and no big player provides a focus for speculators' conjectures about its actions (as further explained below).

Capital movements among countries with independently floating currencies tend to be restrained by exchange-rate uncertainty itself and by movements of the rate that discourage further investment. Appreciation of the currency of a country of destination makes its investment securities and properties more expensive for foreign investors than before (but a qualification must be made if rises and falls of prices of investments translated into foreign currency perversely attract and reverse capital inflows). Furthermore, volatile exchange rates responding to capital flows affect all sorts of transactions and not just the capital movements themselves. Floating exchange rates do, well, float, to the disadvantage of some economic sectors on each occasion.

Again, no particular system has all advantages and no disadvantages. Exchange-rate pegging replaces rate movements with rises and falls of domestic money supplies and with uncertainty about whether the pegging will be maintained after all. Monetary unification sacrifices a kind of quasi-flexibility in regional prices and wages, as well as the possibility of monetary policy attuned to local conditions.

We must distinguish among kinds of claims, securities, and properties acquired by investors who undertake international capital movements. Inflows into bank accounts and currency that do not bear interest are presumably slight for that very reason, but they are the most subject to quick reversal. Flows into portfolio securities are also awkwardly reversible. Movements of flexible security prices should ideally share the restraining effect of exchange-rate fluctuations, and

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more appropriately, since these are the prices of the specific targets of the capital movements. Again, though, a qualification is necessary about possible bandwagon speculation.

Foreign direct investment is perhaps a lesser problem because direct investments, unlike portfolio securities, cannot be quickly dumped in preparation for capital flight. Still potentially troublesome, though, is the intermediate step of buying the medium of exchange of the destination country. Even though aimed at direct investment projects, capital inflows still tend to expand the money supply of the destination country under exchange-rate pegging or to appreciate a floating exchange rate.

We must not forget about capital moving at the initiative not of foreign investors but of borrowers in the target country, such as banks incurring debt in foreign currencies and reassured by the fixity of the exchange rate.

Big Players

Big players have already been mentioned. In our context, these are predominantly governments, central banks, and international organizations. Expectations of other transactors focus largely on them. (Witness reactions to denunciations of currency speculation by the prime minister of Malaysia in September 1997.) A big player is defined as anyone who habitually exercises discretionary power to influence the market while himself remaining largely immune from the discipline of profit and loss (Koppl and Yeager 1996, Butos and Koppl 1993).

Exchange-rate pegging or intervention is the work of big players. So are changes in the economic policy regime, such as restoration of relative monetary stability and confidence after years of inflation. Big players can be the focus of rent-seeking. The International Monetary Fund is a big player in its decisions whether or not to help support a pegged currency under attack or otherwise to provide loans. Intentionally or not, the IMF has occasionally played the role of vetter of a borrower's creditworthiness, with its extension of credit giving encouragement to private lenders. Regarding capital inflows into low-credit-rated countries, *The Economist* (1997a: 54) wrote: "One reason for investors' sanguine reactions seems to be the feeling that countries are simply not allowed to default any more: the IMF, together with rich countries, will always come to the rescue" (see also *The Economist* 1997b: 70).

Some such ideas find support from a surprising source. Treasury Secretary Robert Rubin observes that financial rescue packages have protected investors who lent money to the government or financial

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institutions of countries like Mexico and Thailand, leaving the residents of those countries to bear the heaviest costs of unsound policies. If investors ran a greater risk of losing money, they would act more prudently, forcing governments to change course sooner. Rubin deplored "a situation where people can do unwise things and not pay a price for it" (reported in Wessel 1997).

I am inclined to concur in points made by Ian Vásquez (1997) and Allan Meltzer (1995) about activities of the IMF (and similarly of the World Bank). These tend to support government domination of economies, despite "conditionality" purporting to do otherwise; and politicization of economies increases the scope for rent-seeking. Thrusting debt onto poor countries, putting them onto a debt treadmill, ill serves economic development. Funds for bailouts create moral hazard, tending to delay reforming crisis-prone policies (see *The Economist* 1997b). New issues of SDRs, which the IMF staff likes to propose, accomplish international transfers of wealth in a way that most legislators do not even understand. Self-important international bureaucracies have institutional incentives to invent new functions for themselves, to expand, and to keep client countries dependent on their aid.

Currency Crises and Monetarist Theory

The Asian currency disorders of 1997–98 are not the same as episodes of unsustainable boom or of recession or depression within a country. Different disorders require different strands of explanation. Still, these strands reconcile well with one another. "Monetary-disequilibrium" or "monetarist" theory, put briefly, attributes inflationary boom or business recession to a quantity of money in a country that exceeds or falls short, respectively, of the quantity that the public desires to hold at the hitherto prevailing general price and wage level. Monetarist theory stresses the great and varied contributions that money makes to an economy of fine-grained division of labor and the attendant scope that monetary disorder has for doing damage. It stresses not only money's medium-of-exchange function and the damage done by excess or deficiency of that medium. It also stresses money's function as unit of account and unit in which debts are expressed. Monetarist theory describes the inevitable complications and delays that bedevil adjustment of the size of the unit (e.g., the purchasing power of the dollar, peso, or whatever) when money's supply and demand have become imbalanced at the unit's old size.

In particular, the theory describes a catch-22 aspect of a fall in the price level that might otherwise remedy an excess demand for holdings

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of money. Existing debt becomes more burdensome in real terms. Larger real claims hardly benefit creditors if their debtors go bankrupt. The difficulties of indebted firms are likely to impair the productive activities of others as well, notably of supplier firms. Irving Fisher invoked this "debt-deflation" theory in explaining the severity of depression in the 1930s; actually, he had been anticipated by Pehr N. Christiernin, an 18th-century Swedish economist.

The recent Asian crises exhibit analogous troubles of banks and industrial firms that had borrowed heavily in foreign currencies. Depreciation of the local currencies on the foreign-exchange market means an increased burden of external debt. The demand for foreign exchange to service this debt is relatively inelastic, contributing to a possible situation in which depreciation brings on further depreciation in a vicious circle. Debtors, creditors, and their trading partners all suffer. Calls arise for debt moratoria and international rescue operations.

The international context is complicated by involvement of two or more currencies. Change in an insecurely pegged exchange rate, and even the mere prospect of change, impairs money's unit-of-account function. So does jumpiness of a floating rate associated with actual or feared inflation of money and prices within a country. All and all, international currency crises further illustrate, by contrast, why stable money is vital to economic coordination, calculation, and business planning.

Conclusion

The key to avoiding crises is not international gimmickry. Instead of fiddling with exchange-rate arrangements, policymakers should pay attention to the currencies themselves. So far, absurdly, these remain undefined in value; and their values depend precariously on the changeable policies of central banks, which are constantly badgered with short-run-oriented advice from home and abroad.

In recent years critics have castigated the Federal Reserve for continuing to fight an inflation that, they say, does not exist. They seem not to realize that the several consequences of monetary policy stretch out over many years, and with lags of different lengths. The Federal Reserve must attend to whatever early signs it can detect of inflationary pressures that would show up unambiguously in prices only several or many months later. The (near) absence of inflation that critics so often cite is due precisely to the policy that they do not bother to understand. A major defect of the existing system is its depending so heavily on the ability of the Federal Reserve chairman to resist the badgering of ignorant critics.

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Fundamental reform would avoid such dependence. It would avoid sudden unpredictable changes in policy regimes and in official transactions; it would hold down the scope of large centralized decisions, whose effects are harder to cope with than the gradually occurring cumulative effects of innumerable decentralized private decisions; it would reduce the role of official big players on whose dominant decisions the changeable expectations of the public focus. It would provide money of stable or at least of predictable purchasing power.

Although it is not my task here, I am tempted to describe how to achieve these results by getting money issue out of the hands of governments.[1] Each competing issuer of notes and deposits would take pains to remain able to honor its own commitments. Each, in accepting deposits and issuing currency, would have reason to take account of the possible reversal of inflows of funds; it would pay due attention not only to its own asset portfolio but also to the terms on which it incurred monetary liabilities. It would be a shame to foreclose such fundamental reform by embracing pseudo-internationalism in the realm of exchange rates and money.

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[1]For a detailed discussion, see Yeager (1997: 337–425).

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Asian Problems and the IMF

Allan H. Meltzer

Between 1990 and 1996, capital inflows to emerging market countries rose from $60 billion to $194 billion. Mexico's problems in 1995 changed the form of those capital transfers, and equity owners learned from their losses. After 1995, portfolio investment declined, but direct investment increased. Banks were bailed out, so they continued to lend, and bank loans rose with direct investment.

No one carefully monitored those capital flows. When problems developed in Asia in 1997, neither the International Monetary Fund (IMF) nor the private lenders knew the true magnitude of the debts of some of those countries. Firms borrowed directly and through their subsidiaries. Often the total was not shown on any balance sheet. The provision of the IMF Articles of Agreement requiring surveillance, and the decision to strengthen surveillance following the 1995 Mexican problem, proved to be of little use.

Though important, the IMF's failure to monitor seems small beside the elementary mistakes of private lenders. The lenders ignored three principles of prudent behavior that history has shown repeatedly to be a major reason for financial failure.

Mistakes of Private Lenders

First, Asian banks and other Asian borrowers used short-term renewable credits from foreign banks to finance long-term loans. All banks do this to some extent, but the extent matters a great deal. When the foreign loans were not renewed, the Asian banks and corporations faced large defaults.

Second, Asian banks and corporations borrowed in foreign currencies—yen, marks, and dollars—and loaned in local currency. They

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accepted the exchange risk without hedging. Their reasoning was appalling—interest rates were lower abroad. They failed to realize that the difference in interest rates, after allowing for the difference in inflation, included the risk of currency depreciation. I suspect that this risk is now apparent.

Foreign lenders shared this myopia. They did not show concern about making short-term dollar or yen loans to borrowers that financed long-term domestic assets.

Third, many, perhaps most, U.S. and other bankers did not ask to see consolidated balance sheets. They did not monitor the total assets and liabilities of the borrowers.

These three elementary errors are evidence of the pervasive problem of moral hazard. The banks expected to be bailed out again, so they acted imprudently, without regard for basic banking principles. The result has been that equity investors, debt holders, and owners of claims denominated in foreign currency have taken large losses. By mid-January 1998, stock markets in Indonesia, Malaysia, and Thailand had lost about 75 percent of their value on December 31, 1996 (*The Economist* 1998: 98). In the Philippines and South Korea, the loss was 65 percent. In the year to mid-January, holders with claims in Indonesian rupiah lost 70 percent of their value. The Thai baht, South Korean won, and Malaysian ringgit fell 40 to 50 percent in the same period.

The Problem of Moral Hazard

What of the U.S., Japanese, and European banks? Their loans are in dollars, yen, and other hard currencies. They want repayment in full. The IMF and the principal governments lend money to the Asian governments so they can pay the interest on their existing bank loans or repay the principal. Extending new credit helps the Asian banks to avoid default, but the money goes to the foreign bankers. Instead of taking losses like the holders of currency, stocks, and bonds, the banks collect with relatively small losses. And, in exchange for extending repayment, the banks collect fees for renegotiating the loans. They demand government guarantees of the loans they made to banks, financial institutions, and private corporations.

This policy is the fourth mistake. I believe it is the greatest mistake of all, because it invites a larger financial crisis in the future. The Mexican bailout required $40 billion. This time the IMF and governments of developed countries have promised South Korea $57 billion, Indonesia $34 billion, and Thailand $17 billion, for a total of $117 billion.

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Capitalism without failure is like religion without sin. It doesn't work. Bankruptcies and losses, even the threat of bankruptcy, concentrate the mind on prudent behavior. Prudence is the missing element in the Mexican and Asian problems. In its absence, bankers and other lenders have taken excessive risks. They have no incentive to learn about how many loans borrowers have outstanding, how much borrowers have borrowed short to lend long, or how much currency risk has been assumed. The lenders don't care much, because they collect with little or no loss whatever happens.

The IMF's programs contribute to the large wedge between the social risk—the risk borne by the troubled country—and the private risk borne by bankers. This is one source of moral hazard, and one reason we have a crisis-prone system. A common argument in its defense is that Mexico repaid its loans to the U.S. government and the IMF. That argument misses the point. If banks and financial institutions had taken losses in Mexico, they would have exercised elementary judgment about risks in Asia.

Some bankers and Treasury officials defend more money for the IMF by citing loans to Mexico as a success for U.S. Treasury-IMF intervention. This is an extraordinary claim. It looks only to the repayment of the loan, achieved mainly by borrowing abroad. It ignores the effect on the Mexican economy.

Consider the record. The U.S. Treasury and the Federal Reserve have been "helping" Mexico since the 1930s. The IMF has been at it since the 1970s. Successive Mexican governments have learned that if they face a crisis, one or both of these friends will lend them money to make the immediate crisis appear less onerous. Investors have learned that they get bailed out, so they continue to invest. I believe that goes far toward explaining why Mexican policy has been erratic and undisciplined at times. The Bank of Mexico and the government take excessive risk and incur large losses for Mexican taxpayers.

The foreigners do not deserve all of the blame, by far, but they contribute. The results have been disastrous for the Mexican economy and its people. Despite enormous growth in the world economy in the past 20 years, Mexican real income in dollars was the same in 1996 as in 1974. The Mexican people have been on a bumpy road, but they have gone nowhere. In the same period, Mexican debt in constant dollars increased from $40 to $160 billion. Much of this is the price Mexico paid for U.S. and IMF assistance. Without the IMF and the U.S. Treasury, Mexico would learn to run better policies, would have less debt and, I believe, would have made more progress.

Frequently, the argument is made that moral hazard is not a problem because no government chooses to subject its economy and its people

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to the losses experienced in Latin America in the 1980s, Mexico in 1995, or in Asia now. I believe this is true but irrelevant. The issue does not arise in that way.

A country may find it necessary to choose between offering guarantees to foreign lenders and facing large withdrawals of foreign loans. Mexico, Korea, and others have faced precisely this choice. The government may choose to guarantee the loans by issuing dollar-denominated securities, such as the Mexican tesobonos, or by promising to accept responsibility for private debts denominated in dollars, as in Korea. When the government offers the guarantee, it believes the default risk is manageable or bearable, just as the U.S. government believed that the risk in the saving and loan system was manageable. It is not necessary for the government to plan a debacle; the debacle is one possibility. The probability may be small at the time the crucial decision is taken. A finance minister faced with this choice will almost always prefer to avoid the crisis now, at the risk of a future larger crisis, than to accept the crisis now when many critics are ready to claim that the crisis is avoidable. And sometimes they are right.

The opportunity to take a (possibly small) risk of a later crisis instead of a certain, smaller, current crisis is the second source of moral hazard. To reduce the risk of future crises, it is necessary to reduce the chances of a finance minister having to make the choice I described.

IMF and U.S. Treasury lending to Asian countries continues this dangerous system. The risk of a bigger, future crisis increases. Too much of the world has become "too big and too indebted to fail." Neither the IMF, nor the development banks, nor the U.S. and Japanese governments can pay for all the errors, mistakes, and imprudent actions they help to create.

"Too big to fail" was a flawed idea when applied to U.S. savings and loans and to Swedish, Japanese, Latin American, and other banks. It is no less flawed when applied to U.S., Japanese, and European banks and financial institutions that have lent in Asia.

Secretary Rubin was right when he said in September 1997, "What we don't want to have is a situation where people can do unwise things and not pay a price" (reported in Wessel 1997: A2). But that is the system that Secretary Rubin and the IMF have created and sustained.

Many arguments are used to justify these policies. Some are misleading. Some are based on misunderstanding. Some are simply wrong.

Arguments for IMF Intervention: A Critique

One common argument, repeated many times, is that South Korea is a large country, the world's 11th largest economy. This argument

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sounds impressive and, indeed, growth of the Korean economy since 1953 is a remarkable achievement. But the inference is that a financial collapse in South Korea would be a world-shaking event. In fact, Korea has a GDP about equal to the GDP of Los Angeles County. It may be the 11th largest economy, but it is about 5 percent of the U.S. economy.

One of the most serious misunderstandings concerns the role of a lender of last resort. Historically the function of a lender of last resort is to prevent unnecessary financial failures during periods of panic. A lender of last resort functioned at its best in Great Britain after 1866, and at its worst in the United States during the Great Depression.

The role of a lender of last resort is not to bail out failed banks. Its job is to assure that solvent financial institutions do not fail because of lack of liquidity. The Asian central banks have the power to stem a domestic, liquidity crisis. The remaining problem is the need for foreign exchange to repay foreign currency loans.

The IMF offers two services. It lends foreign currency on condition of reform, called conditional lending, and it acts as a consultant to troubled countries. Unlike most consultants, it pays the borrower to take its advice by offering favorable terms for its loans. With interest rates in Korea above 20 percent, the IMF lends at less than 5 percent.

Asian problems do not require large international loans from the IMF and the developed countries. These loans are more likely to delay than to promote reform. The IMF may threaten to withhold payments, but its history shows that the threat is empty. The IMF has a stake in "successful recovery." Client governments understand that. They know that the IMF does not want a failure. They call its bluff, delay reforms, but they get the loan payments. Despite many attempts and much research, the IMF has not been able to demonstrate that countries meet the conditions they promise to fulfill. Some do; some don't, but some would have done more to reform without the loans.

Many critics of the IMF oppose the policies of fiscal stringency and control of inflation. I do not share those criticisms in all cases. In countries with inflationary policies, control of spending is essential.

That is not the problem in Asia. The present predicament was not caused by imprudent spending policies, excessive demand, and high inflation. Much of the problem arose because one of the principal markets for Asian products, Japan, has grown slowly and because China increased its share of the Japanese market after devaluing in 1994. I applaud the IMF for urging structural reforms to increase competition and reduce local cartels supported by government. How-

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ever, I believe such reforms would come faster in this crisis without conditional loans.

The IMF errs when it urges Asian countries to reduce demand. What is needed is expanded demand, produced not by inflationary policies in each of the countries but by increased demand from Japan.

Solving the Asian Problem

The key to the Asian problem is to end mistaken Japanese policies and reform the Japanese economy. Japan's problems are internal. It should restructure its financial system and end its deflation by increasing money growth. It has the power to do this without international loans. An expansive policy would benefit both Japan and Asia.

If Japan expands, Asian exports to Japan would expand demand in the troubled Asian countries. The principal beneficiaries will be those countries that restructure by breaking up government protected and subsidized industries. As those countries expand, others would benefit, and economic growth would be restored in Asia.

Since 1971, the IMF has been looking for new things to do. It has now solved its problem by creating moral hazard, allowing international banks to avoid the risks they undertake by imprudent lending. The IMF encourages the behavior that creates the problems. It engages in subterfuge by refusing to call the Indonesian cessation of payments a moratorium. To prevent an even larger future financial crisis, we must end this system and create very different arrangements in its place.

If loans denominated in foreign currencies are withdrawn suddenly, solvent borrowers with excellent long-term prospects are unable to repay their short-term loans on demand. Neither they nor their local banks may be able to obtain sufficient foreign exchange to prevent default.

One solution is to have a true lender of last resort. Unlike the IMF, a true lender of last resort does not subsidize borrowers. It charges a penalty rate—a rate above the market rate—and requires good collateral. It offers to lend at a penalty rate to anyone offering proper collateral.

These requirements are not arbitrary. They are essential. The penalty rate means that the lender of last resort will usually do no business. Borrowers will only come when they cannot get accommodation in the marketplace at market rates. Similarly, the requirement to offer good collateral induces banks and financial institutions to hold such assets. This reduces risk and encourages safety and solvency. Unlike the IMF, a true lender of last resort does not create moral hazard.

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Would such a system work? The system is field-tested. It is the system used in Great Britain after 1866, when London was the center of the world financial system. It worked well through good times and bad.

The second proposal eliminates the main source of the problem. If banks were truly international in scope, they would operate in many countries. Local lending in local currency would be part of their mixed global portfolio. Banks would diversify currency risk within a global portfolio, lowering overall lending risk.

This reform is not an idealized, textbook solution. Citicorp, in particular, has tried to follow this strategy. Regulations to protect domestic banks in many countries from competition prevent Citicorp and other foreign banks from following this sensible strategy of relating risk to return within a diversified loan portfolio. The financial services agreement, accepted by members of the World Trade Organization last year, is an important move in this direction. In the proposed system, global banks would internalize the risk, or hedge the risk if they chose to do so.

Conclusion

Let me close with an example. The U.S. financial system experienced many crises and failures. For most of our history, banks were local, often restricted by law to serving a local market. When the corn, wheat, or cotton crop failed, the bank often failed because its loans were not diversified. Eventually, after many bad experiences, the United States has moved toward a regional, and perhaps countrywide, banking system. Loan portfolios are more diversified than in the past. In addition, brokers group loans from a diverse group of borrowers and offer securities based on the loan portfolio. This permits banks to hold a diversified portfolio of mortgage, automobile, credit card, or other loans that were not previously available to them. Banks are safer because their loans are, at last, more diversified.

In the recent past, when semiconductor prices fell or, earlier, when its chemical industry posted large losses, Korean banks experienced large losses, much as local banks in Iowa, Minnesota, Texas, or Oklahoma suffered from a decline in agricultural prices in the 1920s and 1930s, or as Texas banks suffered from a decline in oil prices in the 1980s, or as Swedish and Swiss banks suffered from a decline in local property prices.

The United States has now strengthened its financial system by letting banks branch regionally. European banks are beginning to merge transnationally and to operate branches in other countries.

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The next step is to strengthen the global system. IMF bailouts, and government-enforced restrictions on competition, impede this solution.

Financial crises in Latin America in the 1980s, Mexico in 1994–95, and now in Asia should alert governments to the need for fundamental reform. More money for the IMF delays reform of the international system, encourages moral hazard, and subsidizes risk. Fundamental reform begins with global banking and a true lender of last resort.

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The IMF's Imprudent Role as Lender of Last Resort

Charles W. Calomiris

Throughout history, financial collapses have been defining moments for public policy. Crises promote action, embodied in new financial institutions or policy doctrines. The motives that underlie such policies are sometimes short-sighted—driven by short-run pressures rather than long-run principles—and it is easier to enact unwise policy in the midst of crisis than to reverse course after the crisis has passed, after policies become embodied in institutions or statutes.

The responses by the IMF and the U.S. government to the Mexican crisis of 1994–1995 and the recent Asian crises are examples of dangerous short-sightedness. In the wake of those crises, the Clinton Administration is promoting a new doctrine of global financial bailouts, administered through IMF largesse and conditions. If the IMF and U.S. Treasury are permitted to prevail, the efficiency of global capital markets will suffer, and the incidence and severity of financial crises will grow.

The Mexican and Asian collapses follow a pattern dating back to 1982, and are the byproduct of fundamental flaws in the incentives facing bankers in developing countries. Incentives to assume excessive risk result from the unhealthy partnerships between government and business in many countries, which manifest themselves in taxpayer bailouts of insolvent banks. International support for bank bailouts will deepen that unhealthy partnership, and thus make the preexisting problems in these countries even worse.

The uses of IMF assistance and the U.S. Treasury Department's Exchange Stabilization Fund to bail out insolvent emerging market

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banks and international bank lenders are not only improper (in the sense that these sources of funds were not designed to be used in this way); such assistance and the doctrine that underlies it are a threat to the stability of the world financial system.

The suggestion that the IMF's capital and facilities should be expanded to permit it to engage in more such activity in the future is troubling. The principal lesson of the recent bailout programs managed by the IMF and the U.S. government (and the longer history of generous domestic bailouts of banks in developing economies) is the vital need for all parties (including host governments, the IMF and the U.S. government) to find a credible way to commit *not* to sponsor such counterproductive bailouts.

Why Are Bailouts Misguided?

A guiding principle of a well-functioning market economy is that those who undertake risks should either lose or gain according to the outcomes produced by those decisions. The idea that government, or governments acting through the IMF, should absorb losses when risky decisions turn out badly is fundamentally contrary to this guiding principle of a free-market economy. This is, regrettably, precisely what the IMF and the U.S. government are doing. While assistance is often couched as "liquidity" assistance to resolve "balance of payments" problems, in fact assistance is designed to absorb the losses of insolvent banks and their borrowers in developing economies, and to insulate international lenders from the losses that they would otherwise suffer.

What have been the costs of government absorption of financial losses? Three kinds of costs figure prominently: (1) undesirable redistributions of wealth from taxpayers to politically influential oligarchs in developing economies; (2) the promotion of excessive risk taking and inefficient investment; and (3) the undermining of the natural process of deregulation and economic and political reform which global competition would otherwise promote. I will explain each of the three categories of cost in turn.

Bailouts Benefit the Politically Powerful at the Expense of Others

The first undesirable consequence of these bailouts is the massive redistribution of wealth away from taxpayers in emerging economies, and toward the wealthy political cronies who control their countries' industries and financial institutions, and whose imprudence precipitates financial collapse.

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While bailouts entail loans from the IMF and foreign governments at subsidized interest rates to developing country governments, taxpayers in the United States and other developed economies who pay the subsidies associated with these loans are not the biggest losers from the bailouts. The IMF and the U.S. Treasury in most cases are repaid. Loans from the IMF and the U.S. Treasury, however, provide powerful justification for increased taxation to repay the loans. When the crisis has passed, the big winners are the wealthy, politically influential risk takers, and the biggest losers are the taxpayers in countries like Mexico or Indonesia.

Mexico's financial crisis of 1994–95—often seen as a "success story" by the Clinton Administration—provides a case in point. During the resolution of the Mexican banking collapse, the Mexican government (through its deposit insurance agency) purchased more than $45 billion of bad debts from Mexican banks, half of which are the debts of bank-related conglomerates. The government promised (at the time) that it would not absorb those debts permanently, and that it would hold debtors responsible for paying their obligations. So far, it has done virtually nothing to retrieve funds from borrowers liable for the debts (*Financial Times* 1997: 2). Together with the nonperforming loans remaining in Mexican banks, the total taxpayer exposure to loss from the bailout of insolvent Mexican banks is estimated at 16 percent of GDP. Thus, in addition to bailing out foreign and domestic bankers who had lent funds to Mexican firms prior to the crisis, the likely result of the Mexican bailout will be the transfer of billions of dollars from Mexican taxpayers collectively to the country's wealthiest and most politically powerful enterprises and individuals. The economic result of these taxes is more than a pure transfer to the rich; taxation has also slowed recovery from the recession.

The bailout and redistribution of wealth in Mexico—like those currently underway in Asia—was blessed by the IMF and the U.S. government. In addition to lending money, the IMF and the U.S. Treasury effectively lend respectability and external political imperatives to tax-and-transfer schemes to benefit the rich.

Some proponents of IMF bailouts argue, however, that by intervening the IMF is able to promote fundamental structural reforms (in particular, reforms to domestic banking systems) that reduce the likelihood of future bailouts. The 1994–95 intervention in Mexico, however, provides contrary evidence. In 1995, I was a member of a World Bank team that provided advice to the Mexican government to assist it in implementing its promised reform of the deposit insurance system, which was part of the package of proposed IMF-U.S. Treasury-World Bank reforms. All deposits are 100 percent insured in Mexico,

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and this complete insurance has effectively subsidized high-risk bank lending to powerful risk-taking conglomerates. (Insured depositors have little incentive to question the use of their funds, which leaves bankers free to make whatever use of the funds they please.) In November 1995, we presented a detailed plan for reform to the Mexican government that would have introduced a small element of market discipline into the system and thus would have partially removed some of the government subsidies enjoyed by the Mexican banks.

Ostensibly, as a vaguely worded condition for the World Bank to release $500 million in funds to the Mexican government, the government had to agree to consider some version of the reforms we were advocating. After a day of lip service (and the release of the funds), one of the Mexican officials in charge took me aside and expressed his appreciation for my efforts, and then told me that "of course, the banks won't let us do any of this." That was not a surprise; why would anyone want to give up a subsidy if they have the political influence to maintain it?

So far, little has been done to introduce market discipline into the Mexican banking system, and there is no reason to believe that anything will be done to limit the current system of subsidizing the risks of the industrial conglomerates and the banks they control. According to unofficial estimates, the overwhelming majority of domestically owned Mexican banks are insolvent. On average, 40 percent of the loans of domestic Mexican banks are not performing (even after having shed large amounts of their non-performing loans via government subsidized purchases).

The Mexican experience has made me suspicious of IMF financial sector "conditionality." I expect similar results from the current conditions being attached to IMF assistance in Asia, where backsliding on conditions has begun even earlier than in Mexico. It is very hard to undermine the corrupt partnership between powerful industrialist-bankers and governments by giving them both money in exchange for promises to reform in the future. It is even harder to do so when those conditions are specified in secret agreements—such secrecy makes it impossible for any outside observer to evaluate the wisdom of the conditions, or gauge a country's eventual compliance with them, which further weakens the incentives of recipient countries to comply.

Indonesia is now working on its third IMF bailout agreement, after staring down the IMF on its two previous "agreements." *The Economist* (1998: 37) noted that "In January, Mr. Suharto promised to dismantle many of the monopolies and cartels which control trade in some products. But he seems to have forgotten to tell the monopo-

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lists: the plywood cartel, run by his former golf partner . . . continues to issue instructions to its members. Restructuring of the financial system, awash with red ink, has barely begun." By mid-March, Suharto had become openly defiant of the IMF. His insistence on a currency board and his announced intention to appoint Mohamad Hasan, "the biggest of the cronies," as industry and trade minister, make it hard even for the IMF to argue that conditions will be respected (Borsuk 1998: A12).

Korea's leadership has been much more cooperative with the IMF, but here appearances may be deceiving. As Moon Ilhwan (1998: 54–55) noted in *Business Week*, President Kim "wants the banks to stop lending to big companies at preferential rates. But just in the past six weeks, banks have provided nearly $1 billion in 'emergency relief loans' to sickly *chaebol*. . . . 'The loans are offered at far below market interest rates, and this is a distorted distribution of limited resources,' laments Lee Chae Kwang, head of research at Daiwa Securities in Seoul." IMF aid is being channeled to the banks, which pass it along with impunity to the conglomerates that own them. Thus in Korea, the IMF has not even been able to prevent the immediate misuse of its funds, much less reform the long-term structure of bank-industry relationships.

That is *not* to say that IMF conditions of *all kinds* always fail. The IMF has been somewhat successful in getting countries to change tax or expenditure policies, foreign trade policies, and monetary policies. Banking policy is fundamentally different, however, for two reasons. First, real reform in the banking system takes years to accomplish because it entails new ways of measuring and managing risk, new regulations, and new supervisory procedures. These changes are both politically difficult (because the politically powerful must forego subsidies) and technically challenging. The time horizon necessary to implement successful reform is at least five years (judging from the successful examples of Argentina and Chile, which did so very aggressively and voluntarily). Building effective financial institutions, and reforming the legal and regulatory environment in which they operate, is a protracted and difficult learning process, even when countries have the political will to do so. The horizon of IMF crisis assistance and conditionality (typically two years or so) is simply not suited to achieve true reform in the banking system.

Second, banks are controlled by powerful and concentrated vested interests who are willing to fight hard to maintain their access to subsidized credit and block those reforms. A basic principle of political economy is that powerful minorities (in this case, a handful of conglom-

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erate-controlled banks) generally will be successful in obtaining political favors paid for by fragmented majorities (the average taxpayer).

Thus in practice, crisis countries will always find it easy to promise (but never deliver) true banking reform. Instead, they will tax quickly and deeply, pay back their loans to the IMF, replenish the poker chips of their risk-loving conglomerates, and return to business as usual.

Another criticism of IMF conditions in Asia, as put forth by Martin Feldstein (1998), is that they are inappropriately detailed and microeconomic. Feldstein argues that it is inappropriate for an international agency to intrude so deeply into domestic economic policy, especially since its charter provides no mandate to do so. I agree with that view, but I would hasten to add that the lesson is not that the IMF should provide bailouts with fewer conditions. Rather, I would characterize the new tendency of the IMF to intervene too deeply into the structure of borrowing country economies as the natural result of overstepping the agency's original limits of providing assistance. The new intrusiveness reflects an unwise new goal (providing massive bailouts for insolvent financial institutions and international lenders), a noble hope (to restructure the economies of recipients to prevent future dependence on bailouts), and an unrealistic belief in the ability of such conditions to succeed.

The Expectation of Bailouts Increases the Fragility of the World Financial System

The predictable failure of government to allow losses to fall on risk takers after financial crises not only produces a one-time wealth transfer, but encourages behavior that will lead to a repeat of the same problem in the future, which brings us to the second category of costs resulting from bailouts.

If the risk-taking bankers know that future gains from taking on risk will be private, but losses will be borne by taxpayers (again), that amounts to a government subsidy for risk, which thereby encourages excessive risk taking (the so-called moral-hazard problem).

In the United States, we learned during our Savings and Loan debacle that subsidies for risk taking could lead to large losses from unwise, high-risk investments. The losses to taxpayers from that experience (roughly 3 percent of 1990 GDP), however, were small compared to what has been happening in developing economies over the past 15 years—an era that has seen an unprecedented epidemic of high-cost bank insolvency. Studies by the World Bank and the IMF have documented some 90 episodes of severe banking crisis since 1982. In more than 20 of those cases, the bailout costs to developing country

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governments have exceeded *10 percent of GDP*. In roughly half of those cases (including the estimated losses of some of the current Asian-crisis countries) losses have been in the range of 25 percent of their GDP (see Caprio and Klingabiel, 1996a, 1996b; and Lindgren, Garcia, and Saal 1996).

These facts warrant emphasis. This string of enormous losses is unprecedented, and is occurring during a relatively stable period of positive global economic growth. Losses to depositors in the United States during the Great Depression, for example, were comparatively small. National banks (the only banks for which depositor loss data are readily available) issued 47 percent of U.S. bank deposits (FDIC 1940: 66). Losses to national bank depositors from bank failures during the worst four years of the Depression (1930, 1931, 1932, and 1933) together amounted to only 1.9 percent of average U.S. GNP over those years (GNP data are from *Economic Report of the President* 1968: 218). Assuming similar loss rates to depositors of national and state-chartered banks would imply an estimated loss on all deposits of roughly 4 percent of GDP. Losses during other historical periods of the most severe economic crises—the 1830s, the 1850s, and the 1890s—also pale by comparison to the experience of the last 15 years. Indeed, in many countries historically, severe recessions have not been associated with any significant losses to depositors (Bordo 1985, Calomiris 1993).

What can explain the enormity of loss since 1982? Surely not "shocks" of unprecedented magnitude (like oil price hikes, wars, or global downturns in demand), since such influences have been absent during this period. The explanation for the new epidemic of worldwide banking instability is the roller coaster of risk produced by the choices of banks in developing economies—choices that are the byproduct of government subsidies for risk-taking.

Why are banks behaving so differently now from the way they behaved previously? The answer is simple. Prior to the 1980s, banking systems did not subsidize risk nearly as much as they do now. The wave of partial economic and financial liberalization that swept through the developing world in the 1980s and 1990s has been enormously beneficial in many ways, but it should not be confused with *true* economic liberalization. While many countries have opened themselves to world trade, have privatized many important sectors of their economies (including their financial sectors), and have moved away from direct governmental control of domestic credit, a key flaw in the new era of liberalization has been an expanded, and unhealthy, partnership between government and private business.

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Private business in many developing economies is dominated by oligopolistic conglomerates, often controlled by a small minority of wealthy, politically influential families or corporations. At the center of the unhealthy partnership between government and business in many developing countries is a new kind of bank—what I call the *quasi-public bank*. Quasi-public banks (typically owned and controlled by conglomerates) are private institutions with an implicit claim to public resources (which pay for their losses). They are a key instrument of domestic economic control for conglomerates, and a key vehicle for the transfer of political patronage from the government to these conglomerates.

Prior to the 1980s, banks in developing countries were often state-owned institutions, or private banks subject to strict controls that limited private allocation of credit. That system was highly inefficient and limited private sector access to funds. It was replaced by a "privatized" banking system with a different set of inefficiencies—an unnaturally risky form of bank "privatization" that brought freedom without responsibility. When quasi-public banks (and their parent conglomerates) make profits, they keep them; when they suffer losses, the public pays for them (through bank bailouts). That is a formula for encouraging banks to take on extreme risk.

Quasi-public banks don't always choose to take extreme risk, however, and that explains why they sometimes can survive successfully for years before imposing such large costs on taxpayers. But they are extremely fragile institutions, and they magnify risk for the rest of the economy, particularly during recessions. These banks turn normal economies into a house of cards—one which collapses in the face of even moderate-sized adverse shocks.

The key to understanding how quasi-public institutions magnify economic risk is to consider how they respond to initial losses produced by adverse shocks to their borrowers. Normal private banks experiencing loan losses tend to reduce their portfolio risk to restore the confidence of their depositors and limit the risk of bank failure. But quasi-public institutions need not concern themselves with the risk of failure, since bank depositors and stockholders are all insured against loss by taxpayers. In the wake of losses, these banks face opposite incentives—to channel ever riskier loans to their conglomerates.

Financial crises in these economies tend to go through three stages: (1) initial losses, followed by purposeful increases in bank lending risk; (2) consequent increases in the probability of devaluation, followed by purposeful increases by banks in their currency risk; and (3) large devaluation, followed by enormous losses to banks and taxpayers. The consistency of this pattern in uncanny. It was first visible in the Chilean

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collapse of 1982–83 (that experience has been described in detail by the former Chilean minister of finance in de la Cuadra and Valdes 1992). The same pattern was followed in Mexico in 1994–95, and in Thailand, Indonesia, and Korea in the recent crisis.

The sequence is disturbingly predictable. First, as initial losses of borrowers and their banks mount, banks and their borrower-owners increase credit and thus pursue higher-risk resurrection strategies. The initial recessionary shock that hits these economies raises the probability of devaluation (slightly, initially). The resultant increase in bank risk makes devaluation more likely because of the link between expected bank losses and future government money supply increases.

Second, increased risk of banking collapse means a greater chance of a government bailout of bank losses. Since those losses are often in the range of 10 or 20 percent of GDP, the implications of these potential losses for government expenditure and money supply increases make drastic devaluation a real possibility.

The high probability of devaluation provides banks and their borrower-owners a new opportunity for profitable risk taking in the form of currency risk. As the risk of devaluation grows, the interest rate difference between local currency-denominated debt and dollar-denominated debt rises (reflecting the expectation of a devaluation). Now banks and their borrower-owners face the choice between domestic-denominated borrowing—which has a high current cost, but no currency risk—and foreign-denominated borrowing—which has a low current cost, but a risk of loss following a devaluation (when the value of hard-currency debts can rise astronomically). Because the banks and their owner-borrowers know they will be bailed out by the government if a devaluation occurs, they prefer to borrow via low-interest rate, dollar-denominated debt, and need not worry about the enormous losses they will suffer from a devaluation.

Third, the more the economy increases its dollar-denominated borrowing, the more likely it will be unable to meet those hard-currency obligations. Thus devaluation becomes more and more likely over time.

That, in short, is how quasi-public banks have turned many developing economies into the riskiest financial systems the world has ever seen. Indeed, several former government officials in these economies have issued what amount to "public confessions" that document exactly this pattern (notably the central bank president of Venezuela, Ruth de Krivoy [1995], and the finance minister of Chile, Sergio de la Cuadra). Consider de la Cuadra's discussion of the Chilean collapse.

As in many other countries, the adverse macroeconomic consequences of the initial exogenous shocks to the Chilean economy made it politically difficult to impose the necessary discipline on banks. As

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de la Cuadra and Valdes (1992: 75) argue, "The superintendency could not include in its loan classification procedure a truly independent assessment of the exposure of bank debtors to foreign exchange and interest rate risk because such an assessment would have interfered with official macroeconomic policies."

De la Cuadra and Valdes go on to trace how excessive risk taking by banks and firms, and eventual losses from those risks, produced economic devastation by 1982 and increasingly perverse incentives for lenders. Their discussion warrants recounting in detail:

> In 1981 most banks saw their effective capital plummet further as soon as optimistic debtors became less willing to pay when the net worth of their corporations fell. This reluctance reinforced the previous perverse incentives to banks, so that banks became even more willing to assume credit risks derived from exchange rate and interest rate risks.
>
> By 1981 financing decisions by Chilean firms and banks reflected a *de facto* government guarantee to the private sector for foreign exchange risk. Our analysis has identified the superintendancy's lack of penalization of credit risk in its loan classification criteria as the channel for the guarantee.
>
> The outcome of this structural contingent subsidy was that many small and medium-sized businesses got deeply into debt in 1981. Debts to banks increased during 1981 from 37.6 percent to 50.4 percent of GDP in response to the rise in real interest rates. . . .
>
> By mid-1982 the fall in GDP was so steep that it took on the character of a depression. In June 1982 the government finally decided to devalue the exchange rate by 14 percent. . . . By the end of 1982 the losses that the devaluations had inflicted on the holders of dollar-denominated debts had created insolvency among firms of all sizes. . . .
>
> The sorry state of most debtors caused delinquent loans to rise from 2.34 percent of loans in December 1981 to 3.83 percent in February 1982 and 6.31 percent in May. Most delinquent loans turned out to be 100 percent losses, so they reduced the net worth of banks. . . .
>
> . . . On July 12, 1982, the central bank decided to allow banks to defer their losses over several years, so it began to buy the banks' delinquent loan portfolios at face value. The banks, however, had to promise to repurchase the portfolios at face value over time with 100 percent of their profits, so the scheme did not improve bank solvency by itself. It solved a liquidity problem but also set the stage for making good the implicit contingent subsidy that the government had offered to speculators in 1981 [De la Cuadra and Valdes 1992: 79–80].

De la Cuadra and Valdes emphasize that loans to industrial firms that were linked to banks via conglomerates were especially forthcom-

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ing from banks as a consequence of the government subsidization of risk. Thus despite its free-market orientation and stated commitment to private discipline in banking, Chile ended up insuring "uninsured" claims on banks, subsidizing high-risk resurrection strategies on the part of its banks, and passing on enormous risk-encouraging credit subsidies to industrial firms with close links to banks.

The Chilean pattern was repeated in Mexico in 1994–95. Initial bank loan losses were aggravated by currency devaluation's effects on Mexican firms that had undertaken dollar-denominated debts. Furthermore, Mexican banks, like those in Chile in 1982, had bet heavily against devaluation. Despite the fact that Mexican banking regulations prohibited banks from assuming currency risk, as the peso devalued Mexican banks suffered large losses from illegal "structured note" agreements they had entered into with American banks (discussed in Garber 1997).

In the recent Asian crises, Thailand, Korea, and Indonesia also have seen enormous increases in their dollar-denominated debts over the past year—after recessionary shocks and bank losses were widely known. In the case of Korea, as early as the end of 1996, its chaebols had averaged debt-equity ratios of 400 percent. As exports fell in 1997, debt rose even further (Woodall 1998: 6).

By June 1997, foreign bank debt had grown to 45 percent of GDP in Thailand, 35 percent of GDP in Indonesia, and 25 percent of GDP in Korea, most of which was short-term debt. By June 1997, South Korea's short-term debt was three times its foreign reserves (ibid.: 6). The devaluations of recent months (in combination with the prior pursuit of low-interest dollar-denominated funds) have produced an enormous burden on the taxpayers of these countries who now must repay the dollar-denominated debts at inflated exchange rates.

Ironically, some supporters of international bailouts—notably, Jeffrey Sachs et al. (1995)—see the high dollar-denominated short-term debt burdens of developing market economies as the "cause" of "unwarranted" runs on their currencies which they claim produce financial crises. According to that view, large amounts of short-term foreign debt expose countries to the fickle preferences of foreign speculators. That view is misleading for at least three reasons.

First, the run-up in short-term foreign debt is a *symptom* of weakness (a characteristic of an economy that cannot attract long-term debt) and indicative of the perverse risk-taking incentives of banks and conglomerates that are willing to absorb massive amounts of foreign currency risk at taxpayers' expense.

Second, fickle foreign speculators are not the source of devaluation pressure. Developing economies in which government and business

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are too closely linked tend to suffer two kinds of fundamental problems which underlie devaluation pressures: low productivity growth, and off-balance-sheet fiscal pressures resulting from weak banking systems. Because crony capitalism is highly inefficient, it produces low long-term factor productivity growth, which can threaten the long-term maintenance of a fixed exchange rate against the dollar. As Paul Krugman (1994) and Alwyn Young (1995) noted of the "Asian tigers" years ago, their impressive growth resulted from combining large amounts of savings with inexpensive unskilled labor, not high factor productivity growth.

Fiscal pressures are also important. The off-balance-sheet liabilities associated with costly bank bailouts imply the need to monetize government debts. Because these potential costs and their monetary implications are anticipated by markets, they can undermine the credibility of the fixed exchange rate. A common error of many macroeconomic analyses of exchange rate collapses in Asia and Mexico is the tendency to focus only on the *official* government deficit, ignoring the enormous costs of bank bailouts.

The Sachs view is also wrong to identify foreign funds as the primary sources of balance-of-payments outflows. In many cases (as the IMF's report on the Mexican crisis made clear) foreigners are not the ones who initiate the run on the currency. Well-informed domestic market participants often are the first to flee once it becomes clear that devaluation is imminent.

To What Extent Are the IMF and the U.S. Government Magnifying Moral Hazard?

My review of the moral-hazard consequences of bailouts over the past 15 years has emphasized that domestic governments have often been the most important source of perverse incentives for their banks. Where does the IMF fit in? The main influences of the IMF and the U.S. government in the 1990s have been to aggravate the problem in two ways: (1) to lend legitimacy to (and thus facilitate) domestic bailouts by providing conditions that call for taxation of the domestic middle class to repay the bridge loans from the IMF and the U.S. government; and (2) to insulate foreign creditors (especially banks) from losses during these crises.

Of the two influences, the second is the more pernicious. Insulating foreign banks from loss (by ensuring that bailout packages also rescue them) removes the incentive for foreign banks to avoid lending to high-risk countries. That aggravates the moral-hazard problem by

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promoting the flow of dollar-denominated "hot money" during the second and third stages of the financial crises outlined above.

In this regard, consider the contrast between what creditors learned from the Mexican crises of 1982 and 1994. In 1982 (in the wake of a decline in oil prices and the rise in U.S. interest rates) foreign lenders to Mexican firms suffered enormous losses as the peso depreciated to 1/3 of its pre-crisis value, making foreign-denominated debt unsustainable for many firms. For example, the workout of one of the largest Mexican conglomerates, Grupo Alfa, entailed eventual losses to some of its creditors in excess of 50 percent. Painful lessons were learned by some of these creditors. Citibank in particular learned important lessons about managing risk on its commercial lending in Mexico, and managed its exchange and credit risk much better during the 1980s and 1990s. During and after the crisis of 1994–1995, its losses were far smaller than in 1982.

What will foreign banks learn from the 1994–95 Mexican crisis, or the recent Asian crisis? I fear they are learning that they can lend without fear of default because of the implicit protection of the IMF and the U.S. Treasury. And it does not help matters that the IMF and the Treasury are signaling their intent to provide future bailouts by calling for ever-increasing amounts of IMF capital and new IMF lending facilities. That, of course, will add fuel to the fire of risk-taking in developing economies.

Undermining the Process of Economic Reform in Developing Economies

The cost of insuring foreign lenders against loss runs even deeper, however, which brings me to the third category of costs from bailouts. By insuring foreign creditors who fuel developing economy risk taking, the IMF and U.S. government are undermining the natural process of reform in many emerging economies.

For developing economies true reform is a big step—one that requires the fundamental political transformation from a domestically oriented, rent-seeking society to one willing and able to participate in the competitive global economy. Powerful local oligarchs often can successfully block liberalization if they choose to do so. But the oligarchs may prefer true liberalization if they profit from it. The attraction of participating in the competitive global economy is that globalization offers greater access to foreign markets and foreign sources of capital. That may lead powerful special interests to permit true liberalization if it is the necessary path to globalization. Entrenched

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oligarchs may choose to liberalize in order to trade a large slice of a small pie for a small slice of a much larger pie.

The incentives for oligarchs to liberalize can be strong if foreign sources of capital are only willing to provide funds to economies with appropriate capitalist infrastructures—that is, those which are based on the rule of law, the protection of creditors and stockholders rights, a predictable means of laying claim to title, an orderly bankruptcy procedure, an intelligible system of accounting principles, a non-confiscatory tax system, and fair competition in markets.

But IMF and U.S. government assistance can undermine the incentives that encourage the liberalization process. If oligarchs can avoid true liberalization but still maintain access to foreign capital, where is the incentive for them to relinquish the rule of man in favor of the rule of law, or to allow competition and democracy to flourish? If foreign investors are protected by the IMF and the U.S. government, foreigners will be less discriminating about where they place their funds, and thus provide less of an incentive for reform in developing economies.

Thus, bailouts undermine the natural process of reform that global competition would otherwise promote. They do so not only by taxing (and thus weakening) the emerging middle classes in developing countries (the segment of society most likely to push for real reform), but by undermining the incentives of the existing oligarchs to permit liberalization.

From some quarters one hears praise for IMF bailouts as a means to political "stability" in developing economies. If the pursuit of stability means tilting the balance to preserve corrupt rulers and undermine democratic forces within developing economies, it becomes harder to defend policies solely on the basis of the political stability that accompanies them. I for one am very thankful that stability was not the overriding objective of Americans in 1776.

Distinguishing Liquidity Crises from Solvency Crises

Supporters of the IMF sometimes refer to its assistance as an infusion of "liquidity." While liquidity has nothing to do with financing bank bailouts, liquidity assistance was the motive that gave rise to the IMF as part of the Bretton Woods system. Traditionally (under the pre-1973 Bretton Woods system) IMF intervention was supposed to help bolster central bank reserves to preserve a fundamentally sound exchange rate regime buffeted by "destabilizing speculation."

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After the collapse of the Bretton Woods system and throughout the 1980s, the IMF's role changed. It assumed the role of helping mainly developing countries devalue in an orderly way, and establish credibility in private markets. The IMF offered technical advice, and monitored compliance with macroeconomic policy objectives. During that period, one could argue that the IMF provided "liquidity" assistance (rather than simply wealth transfers) in the sense that its policies sometimes helped to restore credibility by reversing adverse trends in the fundamental macroeconomic determinants that drove exchange rate depreciation.

In the 1990s, the IMF has stretched the notion of "liquidity" assistance beyond any reasonable definition. IMF programs in Mexico and Asia are now *microeconomic bailouts that restore the solvency of clearly insolvent financial institutions.* That objective has nothing to do with bank or government liquidity, or with temporary imbalances in the balance of payments.

These bank bailouts also have nothing to do with "panic prevention." In particular, there is no connection between current IMF programs and the historical interventions by central banks or private coalitions of banks to stem banking crises. (The history and theory of banking panics, and the proper role of the lender of last resort, are reviewed in Gorton 1985, Bordo 1990, Kaufman 1991, 1994, Calomiris 1990, 1993, 1994, 1997, Calomiris and Gorton 1991, Calomiris and Schweikart 1991, and Calomiris and Mason 1997.) The current IMF bailout policies are bridge loans in support of the large wealth transfers from domestic taxpayers to recapitalize clearly insolvent financial institutions and related parties. Historical lender-of-last-resort assistance during banking panics, in contrast, was geared to prevent the failure of *solvent* banks which were temporarily in need of cash to prevent their unwarranted failure.

Given some of the recent concerns of a threat from "irrational financial contagion" voiced by policy makers in the popular press, it is worth emphasizing that the literature on the history and theory of banking panics (cited above) demonstrates that panics have been "rational" phenomena. Bank panics result from reasonable concerns on the part of bank depositors, and are *predictable historical phenomena*. Random, irrational attacks on financial systems are not evident in financial history. Thus concerns of "irrational contagion" spreading from one country to another without any fundamental explanatory link connecting the countries are unwarranted. Such concerns should not be used to justify financial bailouts. For example, there are clear *fundamental economic* connections (notably export product competition) that have produced "spillover" effects across countries within

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Asia during the recent crisis. As during the Mexican crisis, not all countries suffer from the fallout; the spillovers can be traced to economic and financial linkages, not irrational contagion.

IMF bailouts cannot be justified by panic prevention, as that term is properly defined. Nor could the IMF serve as an effective lender of last resort to the banking systems of developing economies. A lender of last resort (whether private or public) must be in the position to observe and control the uses of the funds it provides. Historically, bank clearinghouse coalitions or central banks have been the lenders of last resort.

There is no reason to believe that legitimate lender of last resort protection to stem financial panics would be best achieved via IMF or U.S. government intervention. Runs on banks are either the consequence of fears of impending devaluation (which central banks control via monetary policy), or the consequence of confusion about default risks within the banking system. In both cases, local authorities are the proper institutions to deal with the problem (by resolving the exchange rate uncertainty in the former case, or by deciding on the appropriate lender-of-last-resort policy in the latter case).

In cases where lender-of-last-resort assistance is warranted, the local central bank (unlike the IMF) has the information and legal authority to enforce the necessary conditions on the behavior of banks receiving such lending. Furthermore, those conditions may involve long-run reforms of banking practices. As I argued before, the brief time horizon of IMF involvement makes any attempt by the IMF to achieve meaningful reform of the financial sector, as a condition for assistance, virtually impossible. Financial sector reform is a process that requires many years to design and implement. Countries that have achieved successful banking reform have done so over many years and as the result of a strong domestic commitment to improve banks' incentives, not in response to IMF conditions (Calomiris 1997).

The Current Asian Crisis and the Proposed Increase in IMF Capital

If there is no respectable intellectual justification for the current direction of IMF policy (as illustrated in Mexico and Asia), then why are so many people coming out in support of expanding the IMF's capital and lending facilities? If IMF-sponsored bailouts are weakening democracy, strengthening corruption, aggravating inequality and poverty, and fostering systemic financial instability and industrial inefficiency, why are they so popular?

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I think part of the answer lies in the short-run fears of American banks and businesses, which have led them to equate support for expansion of the IMF with support for its programs in Asia. Many U.S. banks and businesses would stand to lose if the current IMF Asian bailouts were undermined. For many, the "long-run" appropriateness of IMF policy is not the issue; their current exposure in Asia is their overarching concern.

Of course, deciding not to expand the IMF's capital would not in any way undermine the IMF's existing commitments in Asia. Rather, it would only limit the IMF's ability to expand such commitments in the future, in Asia and elsewhere. Thus, I think much of the support demonstrated for the IMF on the part of U.S. banks and businesses is not only myopic, but misguided. There is no immediate threat to Asia from limiting the ability of the IMF to expand in the future.

Policy Recommendations

The following are four specific recommendations that follow from my analysis.

First, policymakers should recognize that IMF bailouts like those provided in Mexico and Asia are counterproductive. The IMF can best contribute to global financial stability by committing not to insulate foreign or domestic creditors from loss. The more that developing countries are forced to handle their own financial insolvencies, and the more foreign investors are forced to bear the costs of their investment decisions, the more developing countries will be attracted by the benefits of true liberalization. International "coordination" of assistance to insolvent creditors is counterproductive to the stability and efficiency of the global financial system.

Second, consequently, there is no reason to expand the IMF's capital or to develop the new proposed lending facility to provide bailouts to financial systems in distress. Indeed, an expansion of IMF capital or facilities would do real harm by signaling an intention to strengthen and expand the IMF's commitment to provide bailouts in the future. The U.S. government should at the very least try to limit the IMF to its pre-1994 goals of advising countries on their macroeconomic policies (to improve exchange rate stability) and serving as an international delegated monitor charged with tracking those policies and providing credible information to global capital markets. The IMF has more than enough capital to achieve those ends. It currently has $45 billion to allocate, and within three years (after its Asian loans have been repaid), it will have much more.

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The IMF and World Bank sometimes have been successful in helping to identify and give credibility to regimes that are honestly pursuing the path of reform. In my view, their expressions of support for these regimes have been more important than the funds they have contributed in support of those reforms. The IMF does not need to use funds to bribe countries to restore balance to their macroeconomic accounts or proper incentives to their banks. The IMF should place its trust in global competition, which gives the most reliable encouragement to true liberalization. Wise economic policies will be rewarded by prosperity, and by global inflows of "unprotected" capital. In the case of banking reform, bribery is not only unnecessary but ineffectual. The IMF should recognize that it cannot control (and should not try to control) the banking regulations of developing economies.

Third, denying the IMF its desired increases in capital and facilities, and working to restrict its purview, are not enough to stop the trend toward unwise expansion of global bank bailouts. Other means of promoting bailouts must also be forsworn. Along with refusing to expand the IMF's capital, Congress should abolish the Exchange Stabilization Fund—a legacy of the Great Depression which has no legitimate role in U.S. monetary policy today. The Exchange Stabilization Fund—originally created to "stabilize the exchange value of the dollar" (Schwartz 1997: 135)—was the source of a $12 billion loan to Mexico in January 1995. No one could plausibly argue that the loan to Mexico was a form of exchange intervention in support of the dollar. This was not the first time the Exchange Stabilization Fund was used inappropriately. Indeed, as Anna Schwartz (1997) documents, the history of the Exchange Stabilization Fund—contrary to its stated purpose—is rife with similar examples of abuse by previous administrations.

The World Bank—which has been partially successful in providing advice and support for long-term financial sector reform—should also be prevented from serving as a substitute vehicle for bailouts. Whatever assistance the World Bank provides should be limited to *gradual* support promoting *long-run* reform of the financial sector. For that purpose, sudden large flows of credit subsidies are unnecessary and counterproductive. Subsidizing privatization of banks requires only small annual flows of credit. Such funds should be distributed only in response to credible government reforms—that is, only after reforms have been initiated, not before.

Fourth, IMF secrecy is contrary to its proper role as a source of independent, objective, and informed opinion about the economic performance and financial risks of member countries. In pursuit of its appropriate mission, any policies or conditions for assistance

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advocated by the IMF should be revealed publicly. That will encourage a lively debate about their merits, and permit critical evaluation of their effectiveness.

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How to Establish Monetary Stability in Asia

Steve H. Hanke

The International Monetary Fund failed to anticipate Asia's financial crisis. Then, to add insult to injury, the IMF misdiagnosed the patient's malady and prescribed the wrong medicine. Not surprisingly, the patient's condition has gone from bad to worse.

What the IMF has failed to realize is the fact that all of the countries in Asia where it intervened in 1997—Thailand, Philippines, Indonesia, and South Korea—had the same type of fatally flawed exchange-rate systems. Although the dramatic events in Asia have generated a torrent of commentary about exchange rates, most of that commentary has either been half-baked or flat out wrong.

Exchange-Rate Regimes

There are three types of exchange-rate regimes: floating, fixed, and pegged rates. Each type has different characteristics and generates different results. Although floating and fixed rates appear to be dissimilar, they are members of the same family. Both are free-market mechanisms for international payments. With a floating rate, a monetary authority sets a monetary policy, but has no exchange-rate policy—the exchange rate is on autopilot. In consequence, the monetary base is determined domestically by a monetary authority. Whereas, with a fixed rate, a monetary authority sets the exchange rate, but has no monetary policy—monetary policy is on autopilot. In consequence, under a fixed-rate regime, the monetary base is determined by the balance of payments. In other words, when a country's official net foreign reserves increase, its monetary base increases and vice versa. With both of these free-market exchange-rate mechanisms, there

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cannot be conflicts between exchange-rate and monetary policies, and balance-of-payment crises cannot rear their ugly heads. Indeed, under floating- and fixed-rate regimes, market forces act to automatically rebalance financial flows and avert balance-of-payments crises.

While both floating- and fixed-rate regimes are equally desirable in principle, it must be stressed that floating rates, unlike fixed rates, do not perform well in developing countries because these countries usually have weak monetary authorities and histories of monetary instability. For a recent dramatic example, we have to look no further than Indonesia. It floated the rupiah on July 18, 1997. Unfortunately, but not surprisingly, the rupiah has not floated on a sea of tranquility. Indeed, the rupiah has fluctuated wildly and has lost 75 percent of its value against the greenback. In consequence, chaos has broken out, with people hoarding toilet paper, rice, and cooking oil.

Fixed and pegged rates appear to be the same. However, they are fundamentally different. Pegged rates are not free-market mechanisms for international payments. Pegged rates, such as those that were employed throughout most of Asia before the recent currency crises, require a monetary authority to manage both the exchange rate and monetary policy. With a pegged rate, the monetary base contains both domestic and foreign components. Unlike floating and fixed rates, pegged rates invariably result in conflicts between exchange-rate and monetary policies (Walters 1990). For example, when capital inflows become "excessive" under a pegged system, a monetary authority often attempts to sterilize the ensuing increase in the foreign component of the monetary base by reducing the domestic component of the monetary base. And when outflows become "excessive," an authority attempts to offset the decrease in the foreign component of the base with an increase in the domestic component of the monetary base. Balance-of-payments crises erupt as a monetary authority begins to offset more and more of the reduction in the foreign component of the monetary base with domestically created base money. When this occurs, it is only a matter of time before currency speculators spot the contradictions between exchange-rate and monetary policies and force a devaluation. That is what happened in Mexico in 1994 (Hanke and Walters 1994). It is also exactly what happened last summer in Thailand and in the other Asian countries with pegged exchange rates. Table 1 summarizes the main characteristics and results anticipated with floating, fixed, and pegged exchange rates.

The Proof of the Pudding Is in the Eating

Base money is the purview of monetary authorities, either central banks or currency boards. Central banks have broad latitude to create

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TABLE 1

Exchange-Rate Regimes

Type of Regime	Exchange-Rate Policy	Monetary Policy	Source of Monetary Base	Conflicts between Exchange-Rate and Monetary Policy	Balance-of-Payments Crisis
Floating Rate[a]	No	Yes	Domestic	No	No
Fixed Rate[b]	Yes	No	Foreign	No	No
Pegged Rate[c]	Yes	Yes	Domestic and Foreign	Yes	Yes

[a]Floating rates are employed in most developed countries.

[b]Fixed rates are employed in several developing countries or regions: Hong Kong (1983), Argentina (1991), Estonia (1992), Lithuania (1994), Bosnia (1997), and Bulgaria (1997).

[c]Pegged rates are employed in most developing countries and also among the countries that are members of Europe's Exchange Rate Mechanism.

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base money. Currency boards do not have that flexibility. A currency board system requires that domestic notes and coins, as well as deposit liabilities at the monetary authority, be fully covered (usually at 100 percent to 115 percent) by foreign reserves denominated in a foreign anchor currency, and that the domestic currency must trade, without restrictions, at an absolutely fixed exchange rate with the anchor currency. An orthodox currency board cannot create credit. Therefore, it cannot extend credit to the fiscal authorities or act as a lender of last resort to the banking system. Currency boards run on automatic pilot, with changes in the monetary base determined solely by changes in the demand for domestic base money—driven by changes in the balance of payments. Table 2 presents the characteristics of currency boards and contrasts them with those of central banks.

The first currency board was established in 1849, and beginning about 1913, that system spread rapidly throughout most parts of the world. In the 1950s and 1960s, many currency boards were abandoned and replaced by central banks, which was a remarkable development. The performance of currency boards had been excellent. All had maintained full convertibility into their anchor currencies. Furthermore, countries with boards had realized price stability, respectable economic growth, and balanced government budgets (Hanke, Jonung, and Schuler 1993).

The demise of currency boards resulted from a confluence of three factors. A choir of influential economists was singing the praises of central banking's flexibility and fine-tuning capacities. In addition to changing intellectual fashions, newly independent states were trying to shake off their ties with former imperial powers. And the IMF, anxious to obtain new clients and "jobs for the boys," lent its weight and money to the establishment of new central banks. In the end, the Bank of England provided the only institutional voice which favored currency boards. That was obviously not enough. Politics, not the economic record, prevailed.

The picture began to change in 1983. After the currency crises of May-September 1983, Hong Kong stopped floating and reestablished its currency board system. This was followed in the 1990s, when Argentina (1991), Estonia (1992), Lithuania (1994), Bulgaria (1997), and Bosnia (1997) established currency board systems.

Those developments trouble some analysts who fret about the inflexibility of currency boards. *The Economist* summarized these sentiments in a piece, "The Great Escape," which appeared in the May 3, 1997, issue. That article asserted that currency boards cannot cope with external shocks; that they are vulnerable to surges in inflation

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TABLE 2

Major Features of a Currency Board versus a Central Bank

Typical Currency Board	Typical Central Bank
Usually supplies notes and coins only	Supplies notes, coins, and deposits
Fixed exchange rate with reserve currency	Pegged or floating exchange rate
Foreign reserves of 100 percent	Variable foreign reserves
Full convertibility	Limited convertibility
Rule-bound monetary policy	Discretionary monetary policy
Not a lender of last resort	Lender of last resort
Does not regulate commercial banks	Often regulates commercial banks
Transparent	Opaque
Protected from political pressure	Politicized
High credibility	Low credibility
Earns seigniorage only from interest	Earns seigniorage from interest and inflation
Cannot create inflation	Can create inflation
Cannot finance spending by domestic government	Can finance spending by domestic government
Requires no "preconditions" for monetary reform	Requires "preconditions" for monetary reform
Rapid monetary reform	Slow monetary reform
Small staff	Large staff

Note: The characteristics listed are those of typical actual currency board or central bank, especially one in a developing country, not those of a theoretically ideal or exceptionally good currency board or central bank.

triggered by capital inflows; and that with limited lender of last resort capacities, they cannot deal effectively with financial emergencies.

The evidence does not support these oft-repeated assertions about the alleged drawbacks of currency boards. Post-1971 data from developing countries show that countries with currency boards or board-like systems (fixed exchange rates) have had average growth rates that were 2.1 times higher than those with central banks (pegged exchange rates), and that the variability of those growth rates (measured by their standard deviations) was virtually identical. As for inflation, currency boards were also superior to central banks, with average inflation rates being 3.2 times higher and 4.7 times more variable in central banking

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than in currency board countries. Financial emergencies have also been much less frequent and less severe in countries with currency boards than in those with central banks (Schuler 1996; Ghosh, Gulde, and Wolf 1998).

It's Time to Lift a Page from the Past

To establish stability in Asia, a page must be lifted from the past. Hong Kong floated the HK dollar in November of 1974, when the HK dollar was trading at about 5HK$/US$. The HK dollar did not float on a sea of tranquility, however.

Given the political unrest in China and Hong Kong, the HK dollar was wildly volatile and steadily lost value relative to the U.S. dollar. The volatility reached epic proportion in late September 1983, after the end of the fourth round of Sino-British talks on the future of Hong Kong. Indeed, financial markets and the HK dollar went into tailspins.

At the end of July 1983, the HK dollar was trading 7.31HK$/US$. By "Black Saturday," September 24th, the HK dollar had fallen to 9.55HK$/US$, with dealer spreads being reported as large as 10,000 basis points. Hong Kong was in a state of panic, with people hoarding toilet paper, rice, and cooking oil.

The chaos ended abruptly on October 15th, when Hong Kong introduced a currency board system. Under this free-market regime, the HK dollar began to trade freely with its new anchor currency, the U.S. dollar, at an absolutely fixed rate of 7.8 HK$/US$. And credibility was insured because each HK dollar was fully backed by U.S. dollar reserves. Hong Kong no longer had an independent monetary policy. It was on a monetary autopilot, with the supply of HK dollars being determined solely by the demand for them (Culp and Hanke 1993).

Apparently, Hong Kong's experience with stopping chaos and establishing stability has been lost on the IMF. This is unfortunate. Stability might not be everything, but without stability, everything is nothing.

IMF Funding

On October 6, 1992, the U.S. Congress passed legislation that directed the IMF to use U.S. quota contributions to establish currency boards, if appropriate (Public Law 102–391, *U.S. Statutes at Large* 106: 1636). Although this legislation was a step in the right direction and motivated the IMF to become more "currency-board friendly," it did not go far enough. The U.S. Congress should not advance further replenishment funding to the IMF unless the Congress imposes conditionality on that funding. Specifically, the Congress

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should not provide replenishment funding to the IMF, unless the IMF mandates currency boards for developing countries that receive IMF credits. This condition would require the IMF to do what it did with Bulgaria in 1997: a currency board or no IMF credits. Currency boards are the only foolproof way to stop currency chaos, limit corruption, and establish stability in developing countries. And stability is a necessary condition for countries to design and implement their own economic reforms, reforms that do not require U.S. taxpayer money and U.S. bullyboy tactics.

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The Origin of Mexico's 1994 Financial Crisis

Francisco Gil-Díaz

After nearly a decade of stagnant economic activity and high inflation in Mexico, the Mexican government liberalized the trade sector in 1985, adopted an economic stabilization plan at the end of 1987, and gradually introduced market-oriented institutions. Those reforms led to the resumption of economic growth, which averaged 3.1 percent per year between 1989 and 1994. In 1993 inflation was brought down to single-digit levels for the first time in more than two decades. As its economic reforms advanced, Mexico began to attract more foreign investment, a development helped by the absence of major restrictions on capital inflows, especially in the context of low U.S. interest rates. Indeed, large capital inflows began in 1990, when a successful foreign-debt renegotiation was formalized. The devaluation of the peso in December 1994 put an abrupt end to these capital inflows and precipitated the financial crisis.

Regulatory Failures, Credit Growth, and the Onset of the Crisis

The financial sector also underwent a substantial liberalization, which, when combined with other factors, encouraged an increase in the supply of credit of such magnitude and speed that it overwhelmed weak supervisors, the scant capital of some banks, and even borrowers.[1]

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[1]Lindgren et al. (1996: 18) show there is abundant evidence of similar phenomena: "Excessive credit growth relative to GDP and rapid rises in asset prices have been associated with a weakening of the quality of bank portfolios and an increase in risk exposure." Furthermore, they add that "Banks that have lost most of their capital face a different incentive structure from sound banks, and competition from insolvent banks can pose threats to the financial soundness of their competitors. As owners and managers try to recoup their losses, moral hazard increases, particularly when managers or owners do not have their own funds at stake. An unsound bank may offer higher interest rates than competitors to draw in deposits to pay operating expenses, may resort to outright gambling by choosing high-risk transactions, or may incur higher risk through adverse selection. In many cases unsound banks become

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Several factors contributed to facilitate the abundance of credit: (1) improved economic expectations; (2) a substantial reduction in the public debt;[2] (3) a phenomenal international availability of securitized debt (see Hale 1995);(4) a boom in real estate and in the stock market; and (5) a strong private-investment response.

Poor borrower screening, credit-volume excesses, and the slowdown of economic growth in 1993 turned the debt of many into an excessive burden. Nonperforming loans started to increase rapidly. A process of adjustment of the balance-sheet position of the private sector, underway by the second half of 1993, and the late adoption by some commercial banks of prudent policies were signs that nonperforming loans had exceeded reasonable dimensions before 1994.[3]

The substantive causes of the debt increase were:[4]

1. The financial sector was liberalized: lending and borrowing rates were freed, the forced channeling of credit was abolished, and bank reserve requirements were eliminated.
2. Banks were hastily privatized, in some instances with no due respect to "fit and proper" criteria, either in the selection of new shareholders or top officers (see Honohan 1997: 13, and Ortíz 1997). It must be noted, however, that on average the

captive to insolvent debtors or carry a portfolio of loans to related borrowers, who have no intention of repaying their debts. Unable to declare loans in default lest they acknowledge their own insolvency, such banks may continue to lend to unperforming borrowers or to capitalize interest on those borrowers' loans" (pp. 57–58).

[2]As Trigueros (1997: 9) shows, "Domestic public debt went from 19.5 percent of GDP at the end of 1989 to just 5.4 percent of GDP at the end of 1994. . . . This latter aspect played an important role in the expansion of bank credit during the period 1989–94."

[3]As Miguel Mancera (1997) has observed, "Wide insufficiency of capital was becoming perceptible, a phenomenon explained by the relatively high level of past due loans that had not been adequately provisioned. Moreover, some commercial banks were operating with serious problems which were not readily noticeable to the financial authorities. In some instances, bank administrators acted with disregard to existing regulations and proper banking standards."

[4]Other factors are: (1) To calculate nonperforming loans, banks applied a "due payments criteria"—the amount of payments due after 90 days were recorded as delinquent loans, instead of the value of the loans themselves. (2) Taxes on international capital flows (dividends, interest, etc.) were drastically reduced or eliminated. (3) Some commercial banks were able to have access to disproportionate amounts of money-market funds because of their confidence that, on any particular day, they could rely on an unlimited supply of daylight overdraft facilities at the central bank. (4) The banking sector did not have a consumer-loan credit bureau, nor did it actively utilize the bureau available on business loans. (5) There was a deep structural transformation in the economy that radically altered many relative prices, which canceled opportunities in traditional sectors, turned good projects into bad ones, and altered the relative ability to service the debt of many sectors and enterprises.

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banks remained in government hands for half of the expansionary period.

3. Several banks were purchased without their owners proceeding to their proper capitalization. Shareholders often leveraged their stock acquisitions, sometimes with loans provided by the very banks bought out or from other reciprocally collaborating institutions.
4. The expropriation of the commercial banks in 1982 contributed to their loss of a substantial amount of human capital during the years in which they were under the government. With these officials institutional memory migrated as well.
5. Moral hazard was increased by the unlimited backing of bank liabilities.
6. There were no capitalization rules based on market risk. This encouraged asset-liability mismatches that in turn led to a highly liquid liability structure.
7. Banking supervision capacity was weak to begin with, and it became overwhelmed by the great increase in the portfolios of banks. Part of this weakness originated in the political stature of government-appointed CEOs when banks were still government owned.
8. There was a substantial expansion of credit from the development banks.
9. From December 1990 on, foreigners were allowed to purchase "domestic" (short-term) government debt. Since domestic public debt decreased during this period, the purchases of *Cetes* by foreigners enhanced the purchasing power of their domestic sellers.
10. Short-term, dollar-indexed, peso-denominated Mexican government securities, *Tesobonos*, were issued at the end of 1991, although not in large amounts except during certain periods.

These experiences are not unique to Mexico. As Lindgren et al. (1996: 100) point out, "Formerly regulated banks may lack the necessary credit evaluation skills to use newly available resources effectively."[5] And they concluded: "Unless properly overseen, liberalization

[5]Also see Honohan (1996): "Often hailed as the panacea for banking weaknesses of one sort or another, privatization has all too often been the regime change which incubated more serious problems. This has been the case both in transition economies and in developing countries that had operated with state-owned banks. The problem has generally lain in the lack of suitability or experience of the new owners, in the inadequate capitalization of the privatized banks or both."

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can result in too rapid growth of bank assets, over-indebtedness and price-asset bubbles" (p. 107).

The factors listed above combined with a greatly improved perception of the country's short- and long-term prospects to generate the conditions that would result in the Mexican crash.[6] This combination of forces constitutes another example[7] of how financial liberalization[8] can go astray, despite important economic achievements. Thin or no capitalization of some banks was a key ingredient that combined with the other elements to induce imprudent credit growth.[9] But, as Lindgren et al. (1996: 77–8) show, fast credit growth and its aftermath is not an exclusive feature of Mexico's crisis: "Kaminsky and Reinhart (1996) reviewed the experiences of 20 countries that experienced banking and balance-of-payments crises and found that in about half, the banking crisis preceded the balance-of-payments crisis. The causal pattern reversed in only a few instances. Thus, there is support for the notion that bank soundness exerts negative effects on the external balance and the exchange rate." Also, "All the sampled countries except Venezuela experienced a sharp expansion of credit to the private sector prior to the crisis" (Lindgren et al. 1996: 84). The experiences of the Czech Republic, Malaysia, Thailand, South Korea, and others in 1997 should be added to the list above, as well as the similar episodes of Sweden and other developed countries in 1992.

The Macroeconomic Feedback of the Credit Expansion

Mexico's credit expansion churned out impressive numbers. From December 1988 to November 1994, credit from local commercial

[6]Lindgren et al. (1996: 12) describe well what went on in Mexico from 1994 to 1996: "After many years of nationalized banking [from 1982 to mid-1992], commercial banks lacked the experience and organizational and information systems to adequately assess credit and other market risks and to monitor and collect loans. Accounting practices did not follow international standards. Concentration of loans and loans to related parties was a problem in those banks that were subsequently subject to intervention." They also find that "banks that are, or were recently, state-owned were a factor in most of the instances of unsoundness in the sample" (p. 107), and "it becomes more difficult to distinguish good from bad borrowers when bank loans are growing rapidly" (p. 110).

[7]Chile's 1982–83 crisis has many parallels with Mexico's. See, for instance, Gil-Díaz (1995) and Velasco (1987).

[8]Mancera (1997) discusses the causes of the increase in private debt and provides a full presentation of the diverse financial salvage operations performed in the aftermath of the crisis to protect depositors, to provide relief to low-income debtors, and to encourage shareholders to capitalize commercial banks.

[9]According to Honohan (1996: 13), "Unusual asset price movements, rapid growth of lending, especially for property transactions and for financing of stock market positions, [and] capital inflows. . . .are some of the tell-tale signals of a credit financed asset-price boom which may prove to be unsustainable."

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banks to the private sector rose in real terms by 277 percent, or 25 percent per year.[10]

Some items provide a better understanding of the underlying trends: credit card liabilities rose at a rate of 31 percent per year, direct credit for consumer durables rose at a yearly rate of 67 percent, and mortgage loans at an annual rate of 47 percent, all in real terms.

External credit flows to the private sector went from −$193 million in 1988 to $23.2 billion in 1993. The figure fell to $8.9 billion in 1994, but that decrease was more than compensated by the fall in the international reserves of the Banco de México, which decreased by $18.9 billion.[11] Therefore, the total use of external resources in 1994 was $27.8 billion. The total external financial flows to the private sector were also substantial: $97 billion over the 1989–94 period.

Those rates of growth are portentous. As Honohan (1996: 1A) warns, "There are general indicators which apply whether or not there is a macroeconomic boom and bust cycle." He lists, among others, the following tell-tale signs: "One measuring balance sheet change, namely the growth in aggregate lending (in real terms). This is the classic indicator of individual bank failure and may also serve for systems." And, "two drawn from the structure of the balance sheet, namely the loan-deposit-ratio and reliance on foreign borrowing."

The unseemly attraction of foreign resources, the liquidation of large amounts of government debt, and moral hazard nurtured an increase in private aggregate demand that contributed to the rapidly rising current-account deficit. Furthermore, the deficit was financed in large proportion by short-term capital. The growing external deficit was combined with the commitment, a pledge consecrated in the so-called Pacts, to contain the exchange rate within a widening but relatively tight band.

For most of the period, the exchange rate stuck to the most appreciated level within the band, as domestic interest rates attracted short-term capital, banks and private firms borrowed abroad, and foreign money flowed into the stock market. The central bank accommodated the demand for currency and in that endeavor partially sterilized inflows or outflows of foreign exchange, allowing international reserves to increase or decrease as required. Because of the excess supply of dollars, the amount of reserves persistently increased, up to the uncertain period prior to the vote of the U.S. Congress on NAFTA, when

[10]All the figures quoted in this section were provided directly by the Economic Research Department of Banco de México.

[11]Gil-Díaz and Carstens (1997) provide a detailed explanation of why these losses were deemed recuperable at the time.

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reserves temporarily fell. The increase in reserves resumed after NAFTA was approved and continued to increase until the start of the political wobbles of 1994.

The deficit in the balance of trade rose 5.83 percentage points as a proportion of GDP over the period, explainable up to 81 percent (4.74%/5.83%) by the rise in private investment. But a substantial portion of the increase in private investment went into unprofitable ventures, thus contributing to the unsustainability of the current-account deficit. Some of those undertakings were highly leveraged tollroads, or unrecoverable home mortgages, or credit unions that invested with low or negative returns financed through the development banks. Some of the credit, in turn, went to finance nonexistent enterprises or the hugely levered acquisition of bank shares, or went to non-collateralized loans.

Thus, a classic overindulgence in credit, a frenzy of spending, a substantial short-term debt,[12] and the sitting-duck features of a fixed exchange rate combined to set the stage for the 1995 economic crisis. The emphasis should be placed on the potential destabilizing effects of short-term debt, since foreign direct investment, portfolio investment, foreign-currency securities issued by commercial banks and their credits, and foreign deposits at commercial banks exhibited remarkable stability, even after the onset of the crisis (Trigueros 1997: 3–4). This piece of information is useful to pinpoint the vulnerabilities associated with a fixed exchange rate, especially when it does not coexist with the automatic stabilizers of a currency board.

Even though the virtually fixed exchange rate exhibited its virtues by steadily stabilizing prices, in hindsight one can conclude that it also became increasingly untenable within the environment created: an ever greater fragility of the economy to a speculative attack.

Sharply higher real interest rates in the United States in the second quarter of 1994,[13] a considerable but still orderly depreciation of the peso prior to the December 1994 debacle, and the aftermath of the assassination of a presidential candidate and other unfortunate political events poured gasoline onto already burning coal.

Just as many European currencies collapsed in 1992 after unrelenting speculative attacks on their narrow exchange bands, the political events of 1994 triggered what for one economist was a death foretold

[12]Trigueros (1997: 5) concludes, "From the beginning of 1990 to the third quarter of 1994 accumulated short-term inflows amounted to at least $40 billion while, over that same period, the increase in international reserves was close to $10 billion."

[13]The demand for peso assets is highly sensitive to changes in the price of the 30-year U.S. Treasury bond (see Calvo et al. 1993: 108–51).

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but a surprise nonetheless: a drain in international reserves until the exchange-rate limits had to be abandoned in December 1994 (see Calvo 1995).

The devaluation prompted several damaging effects as inflation and interest rates skyrocketed, economic activity collapsed, the burden of servicing debts denominated in domestic and foreign currency increased, and banks' capitalization ratios fell.

The crisis had little or nothing to do with a low savings rate, but a lot to do with credit expansion, as McKinnon and Pill (1995), Calvo and Mendoza (1995), Hale (1995), and Trigueros (1997) have pointed out. It was also unrelated to an overvaluation of the exchange rate as Gil-Díaz and Carstens (1997) painstakingly document. Trigueros (1997) provides some additional clarification on this issue: "Most of the increase in the share of non-tradable productive activities on GDP is explained by the growth of the financial services industry."

A Financial Interpretation of the Crisis

Are the European financial crises of 1992, the Mexican crisis of 1994–95, and the recent Asian currency crises of 1997–98 the result of unsustainable policies given unexpected shocks, or a reflection of multiple equilibria not closely related to measured fundamentals? (See Bordo and Schwartz 1996.)

The classic position, which relates crises to misaligned fundamentals, can be traced back to Harry Johnson (1972), where an excess credit expansion is translated into a loss of international reserves. A balance-of-payments crisis is the outcome of the depletion of international reserves. This position can also be found in Sargent and Wallace (1981), who provide a closed-economy model in which a persistent deficit and real interest rates above the rate of economic growth eventually lead to debt saturation. At that point, private agents refuse to continue purchasing debt, the deficit is monetized, and inflation ensues—not very different from the open-economy model. Finally, Krugman (1979), in a model reminiscent of Mundell (1968), follows on this tradition in a futile attempt to time the speculative attack that will force an abandonment of the exchange rate and thereby propitiate a rise in inflation.

In all those classic approaches, an excessive expansion of credit leads the public, national and foreign, into a refusal to continue purchasing debt, and in all of them a day of reckoning is finally forced upon the government and society.

Michael D. Bordo and Anna J. Schwartz (1996) scroll the experiences of currency crises dating from the 18th century to Mexico's

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recent episode and find reassuring evidence to support the classical contention: currency crises stem from fundamental causes or impending wars. They conclude: "The theory of self-fulfilling speculative attack may have intellectual merit but contributes nothing to our understanding of real-world events. In every crisis examined here, the fundamentals are more than adequate to account for the actions of speculators" (pp. 47–48). Honohan (1997: 2–3) reaches a similar conclusion.

This brings us back to the Mexican crisis. What were its fundamental causes? All the factors listed above made some contribution, but those with the greatest significance were the combination of the exchange-rate regime with a rapid expansion of credit (Bordo and Schwartz 1996), a substantial part of which was of poor quality.[14] The surge of bad credits is in turn explained by flimsy bank capitalization and the failure to ensure that some bankers met the "fit and proper" criteria to own or manage the institutions.

It would be incorrect to isolate a factor, despite the key role it played, like the proportion of short-term government debt held by foreigners whose holdings have been shown to be particularly volatile (see Calvo 1996). Such volatility is probably derived from the ease with which, under a fixed or quasi-fixed exchange rate, peso demand fluctuations have to be and are expected to be readily accommodated.[15] Volatility and risk stem in part from the exchange-rate regime. A floating rate presents speculators with currency uncertainty compounded by other risks, notably market-value risks.

The lower risk speculators confront under a fixed exchange rate is borne by the government (i.e., by society at large). The insurance premium paid by society to cover exchange-rate risks is proportional to the size of the international reserves needed to reassure investors that potential claims will be satisfied. Mexico's reserves were insufficient even before December 1994 because of the size of the country's financial sector. Some authors puzzled by the depth and virulence of the Mexican financial crisis have tried to explain it, at least partly, by

[14]A further discussion of the effect rapid growth in bank lending has on bank failure can be found in Gavin and Hausman (1995) and Honohan (1997: 3–6).

[15]Evidence of how different institutional arrangements condition market behavior can be found in the comparison of the 1988–89 adjustment period with the 1995–96 period. Alejandro Werner (1997) found that the volatility of interest rates and the average value of the real interest rate were much lower in the latter period. Both intervals have several similarities, the most important one being that both were phases of adjustment to a crisis, but also a major difference: in the 1995–96 adjustment program a flexible exchange rate was adopted versus a predetermined rate in the 1988–89 program.

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pointing out the financial vulnerabilities of the country (see Calvo 1996: 208).

That line of reasoning is insightful, but it does not go far enough.[16] All domestic and foreign liabilities, peso and foreign currency denominated, have to be honored if there is a run on a country committed to a fixed exchange rate. One must also take into account that about 70 percent of all bank liabilities were payable overnight and that the rest were very short term.

But this situation of extreme liquidity was not new to Mexico nor to most other countries. What was new was the coexistence of a formidable growth in the volume and speed of international capital movements with the persistence, in some countries, of a fixed exchange rate (see Hale 1995). In this regard Mexico's currency collapse was not much different from that of several European countries in 1992 or the recent Asian crises.

Another often-invoked contributor to the Mexican crisis is the expansion of central bank credit in 1994. This vision ignores the fact that fractional reserve banking requires a lender of last resort, even under a currency board. Banks cannot liquidate loans when there is a run. Because of this simple but inescapable fact, all the lines that have been written about the so-called excessive expansion of the central bank's internal credit during 1994 are nonsensical. The logic of a fixed exchange rate is implacable. When there is a run, banks are all of a sudden left with more loans than deposits. Hence, when the central bank lends to commercial banks to balance their positions, it is simply fulfilling its unavoidable obligation as lender of last resort. This task is either performed by foreign creditors, which is unlikely when there is a run, or by the central bank. Under these circumstances, even a currency board needs a lender of last resort, as attested by the (appropriate) 1995 reaction by Argentinean authorities to stem the run they were facing.

To sum up: the correct sequence of events, which has been amply described and documented elsewhere (Mancera 1997, and Gil-Díaz and Carstens 1997), was initiated by a fall in the demand for peso assets equivalent to a loss in international reserves equal to the loss in bank deposits. This fall in demand was followed by an almost simultaneous credit increase from the central bank.

Conclusion

The original sin that led to the Mexican crisis is to be found in the expropriation of commercial banks that weakened them and rendered

[16]One could even counterargue that the lowest convertibility risk comes from holding the local currency (M_0 or M_1) which is totally liquid and, conversely, that the highest convertibility

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them a fragile conduit for privatization and credit expansion. In addition, the following factors reveal the true measure of Mexico's financial vulnerability at the end of 1994: (1) A semifixed exchange rate; (2) a sizable current-account deficit resulting to a large extent from a huge credit expansion, not from the overvaluation of the exchange rate, as often claimed; (3) a substantial rise in U.S. interest rates; and (4) a trigger, consisting of the political tensions accumulated during 1994, a fact seldom incorporated by most analysts.

In hindsight, I now believe we have a clear idea of the origins of Mexico's financial crisis. Its symptoms and causes, as those of other countries, provide us with valuable lessons, the most important of which is perhaps the need to observe the behavior of credit aggregates, to follow the path of real estate prices, and to achieve transparency in the disclosure of financial information. Although many of these symptoms are by now almost self evident, and although the relevant information was available at the time to the international financial community, the consensus was that Mexico was doing everything right.

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risk comes from those bank and government obligations not included in M_2.

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Lessons for Asia from Mexico

A. James Meigs

The Mexico crisis of 1994–95 and the recent wave of currency crises in Asia obviously surprised many international monetary experts in securities firms, governments, international financial institutions, universities, and the world financial press. What can the Mexico experience tell us about why so many experts were surprised in both cases and about how they might avoid such surprises in the future?

First, not everyone was surprised by the Mexico crisis. Some Mexican and foreign investors and speculators were clearly ready for it. They did not broadcast warnings to the general public; they merely acted with their clients' money and their own by selling peso assets for dollars when they decided the time was ripe. Many hedged in futures markets or through buying *Tesobonos* (dollar-linked Mexican government bonds) well before the crisis. They had seen devaluations before. A similar alertness of investors and speculators clearly was a feature of the crises in Asia as well.

At least one economist predicted the Mexico crisis publicly and well in advance. In May 1992, Milton Friedman told the Cato Monetary Conference in Mexico City that Mexico's pegged-exchange-rate policy was unsustainable. He said it was time to set the peso free or else to reduce the rate of monetary growth. He thought that any one who looked at the same numbers on relative rates of growth of Mexican and U.S. money supplies and relative rates of Mexican and U.S. price inflation that he did should have come to the same conclusion (Meigs 1997: 36–38). Apparently, however, few other experts saw what he saw or came to the same conclusion when he did.[1]

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[1]One Mexican economist who did was Luis Pazos, at the Centro de Investigaciones Sobre la Libre Empresa (CISLE) in Mexico City. Inspired by conversations with Milton Friedman, he wrote many articles and three books on the dangers of exchange-market intervention (Pazos 1993, 1994, 1995, 1996).

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Friedman's success in predicting the Mexico crisis raises two questions for investigators trying to find what went wrong in Asia: (1) How could he predict from information available in May 1992 the devaluation of the peso and the crisis which followed more than two years later? (2) Could the kinds of information he considered for Mexico help to explain why the pegged-exchange-rate currencies of the Asian tigers came unstuck in 1997? I believe the answer is yes.

Who Was Surprised by the Mexico Crisis?

Economists, with rare exceptions, did not warn their peers or the general public that a policy of fixing exchange rates (or permitting only small appreciations or depreciations) was likely to fail and that the failure could inflict severe costs on people who had expected the authorities to succeed in controlling the exchange rate. Economists should be faulted for not reminding the public about historical evidence from many countries, including Mexico, that governments can control inflation rates or exchange rates, but not both at the same time. Controlling one requires relinquishing control over the other. The currently popular prescription for currency boards, for example, would control exchange rates by automatically allowing money supply, prices, and wages to rise or to fall whenever foreign-exchange flows into or out of a country's currency board at a fixed exchange rate.

At the beginning of the Mexican experiment with pegged exchange rates in 1988, many economists inside and outside of Mexico adopted the beguiling idea that fixing the peso/dollar exchange rate would also control inflation, thereby fulfilling two objectives with one policy. Fixing the peso to the dollar would provide an anchor for Mexico's price level, or so they argued.

Investors, bankers, business managers, and consumers, both Mexican and foreign, who believed those economists, acted as though they assumed that pegging the peso to the dollar would virtually eliminate exchange-rate risk, inflation risk, and default risk (risk that people or firms borrowing dollars would be unable to obtain enough dollars to repay on the original contractual terms if the peso/dollar rate were to change).

In 1994 and 1995, however, people who had based contracts on those comforting assumptions about the peso/dollar rate found they had been wrong on all three counts:

The authorities proved unable to maintain control of the peso/dollar rate. The rate changed from 3.44 pesos per dollar in November 1994 to 7.66 pesos per dollar in November 1995, with most of the change occurring within a few days after December 20, 1994. Mexican and

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foreign investors holding Mexican assets found the dollar value of those assets cut roughly in half overnight.

Despite the success in bringing inflation down in the early years of the pegging policy, Mexico's Consumer Price Index (CPI) rose by nearly 50 percent from November 1994 to November 1995, as prices of imported goods in the index more than doubled. This sudden increase in the cost of living imposed great suffering on those Mexican consumers whose peso incomes remained fixed or declined.

A final, devastating consequence of the peso devaluation came when foreign lenders and investors doubted the ability of both government and private borrowers in Mexico to meet their dollar obligations in early 1995. That fall in lenders' confidence converted an exchange crisis into a potential default crisis and greatly reduced the supply of foreign capital.

Early accounts of the 1997–98 crises in Thailand, the Philippines, Malaysia, Indonesia, and South Korea are strikingly similar to those of the Mexican crisis. Investors, bankers, business managers, and consumers, inside and outside of those countries, evidently expected the authorities to be able to control exchange rates. They also expected inflation risks to be low. Furthermore, many lenders and borrowers evidently had so much confidence in the ability of the authorities to control exchange rates that they loaned or borrowed dollars and other foreign currencies without hedging against the risk of a change in exchange rates. Like their counterparts in Mexico several years earlier, they eventually found they had been wrong on all three counts.

The fears of governmental default were painful for Mexico and its creditors while they lasted, but they proved to be unfounded. The government was able to reduce its short-term dollar obligations, including nearly $30 billion in dollar-linked *Tesobonos*, in 1995 with the help of the package of loans put together by the governments of the United States and Canada, the IMF, the World Bank, and the Interamerican Development Bank. However, banks and many other private, unhedged lenders and borrowers of dollars in Mexico suffered losses.

In 1998, the much larger proposed packages of loans to Asian countries from the IMF and possibly other agencies may similarly relieve fears of default in Asia. But these proposed loans, or "bailouts," raise a suspicion that some international lenders and borrowers thought they learned from Mexico's experience that they would not have to bear the full costs if they happened to be wrong in their assumptions about exchange rates and associated default risks. They might be able to shift some of those risks to the governments and taxpayers of the countries supplying the official aid. Expectations of

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possible IMF and other official aid in case of exchange-rate breakdowns thus may have increased the total costs of the 1997–98 Asian crises. When dollars and other foreign capital flooded into Asia, expectations of official aid would have made lenders and borrowers less vigilant than they otherwise would have been.

What Should Investors in Asia Have Learned from Mexico?

The first lesson is that pegged-exchange-rate systems are extremely sensitive to domestic political developments or external shocks that affect investors' expectations. In today's fluid international financial markets, a small change in the stock demand for the capital assets of a country can cause a large, sudden change in the rate of flow of capital into, or out of, the country. Or, a change in investors' estimates of relative risks and returns can reverse direction of the net capital flow. Such changes in rates and directions of capital flows can put large, sudden pressures on exchange rates to appreciate or depreciate. The authorities might be unable to offset those pressures, as Mexico found in 1994 and the Asian countries found in 1997.

That is not a new lesson. Mexico provides only one of many cases illustrating effects of volatile international capital flows on exchange rates. However, Mexico provides an unusually clear case. For example, Mexico's success in bringing inflation down in the early 1990s, and its program of privatizations, trade liberalization, and other structural reforms, clearly increased capital inflows from Mexican and foreign investors. Political disturbances clearly influenced Mexican and foreign investors to move capital out of Mexico in 1994. Wide swings in U.S. interest rates and in total returns on U.S. common stocks between 1988 and 1994, and other external shocks, also contributed to pressures on the peso/dollar rate through influencing capital flows. Sharing a bathtub with an elephant can be dangerous.

Textbook treatments of the problems faced by governments and central banks trying to control exchange rates in the face of changing capital flows argue that a government can offset the effects of capital flows on exchange rates through buying or selling dollars or other foreign exchange. Governments also are expected to influence directions and rates of capital flows by raising or lowering interest rates or by imposing various direct controls on exchange transactions. Nevertheless, those instruments can fail, as they have in many countries many times.

The judgment of Francisco Gil-Díaz and Agustín Carstens on that point is compelling. Writing from their experience at the Banco de

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México, they said in 1996, "A massive speculative attack on a currency whose authorities are committed to maintain a band cannot be resisted, certainly not in the present environment where the speed and amount of resources that move everyday in world financial markets quite simply overwhelm authorities" (Gil-Díaz and Carstens 1996: 20).[2] Their judgment was certainly borne out by the subsequent experience of Thailand, the Philippines, Malaysia, Indonesia, and South Korea.

The second major lesson is that the causes of an exchange crisis are not to be found in what happens during the crisis itself. The causes of Mexico's crisis gradually accumulated several years earlier, in 1990–93, when Mexico was attracting large capital inflows.

Most accounts of currency crises, however, emphasize what the authorities could or should do to prevent the exchange rate from *falling* under speculators' attacks when capital flows *out*. That is often too late. Mexico's experience indicates that a currency crisis could be avoided by permitting the exchange rate to *rise* when capital flows *in*. I believe that if Mexico had adopted market-determined exchange rates in 1988 or soon thereafter, instead of trying to control the peso/dollar exchange rate, there would have been no peso crisis in 1994–95 (Meigs 1997).

If the Banco de México had not been obliged to keep the peso/dollar rate within a specified band, the peso would have appreciated against the dollar for much of the time between 1989 and 1994. I suspect the same thing was true in Asia in those years and later. Allowing the peso to appreciate when capital flowed in would have made Mexican exporters unhappy but Mexican monetary base and the money supply (pesos) would not have been inflated by the capital inflows. To keep their currencies from rising against the dollar, when capital flowed in, the central banks of Mexico, Thailand, the Philippines, Malaysia, Indonesia, and South Korea bought dollars and other foreign exchange with newly created monetary base, thus expanding their domestic money stocks. Mexican monetary aggregates, for example, grew more rapidly than those of the United States, despite Banco de México efforts to offset reserve purchases with reductions in net domestic credit (selling Mexican securities, i.e. "sterilizing"). That was one of the danger signs Friedman noticed in May 1992 (Meigs 1997: 50, Fig. 5).

The third, and perhaps most interesting, lesson from Mexico is that a country trying to apply orthodox, conservative, noninflationary

[2]For authoritative IMF surveys of the evolution of financial markets and instruments that reduce the power of governments and central banks to regulate exchange rates, see Goldstein et al. (1993) and Goldstein and Folkerts-Landau (1993, 1994)

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monetary and fiscal policies could still be risking an exchange crisis, if it persists in trying to manage its exchange rate at the same time. The danger is insidious because it may escape notice for years. As we saw above, Mexican monetary aggregates grew more rapidly than their counterparts in the United States between 1988 and 1994. But Mexican monetary expansion rates in that period were much lower than they had been before 1988. Responding to the sharp slowdown in monetary expansion, Mexico's inflation rate fell from a peak rate of 180 percent per year (year-to-year) in February 1988 to a low of 6.7 percent in September 1994 (as measured by the Consumer Price Index). Inflation reached its lowest point in many years just three months before the exchange crisis. The federal budget was brought into balance. Mexico's foreign exchange reserves—conventionally viewed as a key indicator of a government's ability to defend its exchange rate—rose from a level of $6.3 billion at the end of 1989 to a peak of $29.2 billion in February 1994, eight months before the devaluation. Mexico's structural reform program was one of the most ambitious in the world.

During the period of the capital inflows, 1990–93, Mexico was an outstanding success story, attracting $91 billion in net capital inflows, or roughly one-fifth of all net inflows to developing countries (Folkerts-Landau and Ito 1995: 53). It is truly ironic that Mexico's success in attracting capital, earned by doing many things well, gradually made the pegged-exchange-rate policy less sustainable.

I believe much the same thing could be said about Thailand, the Philippines, Malaysia, Indonesia, and South Korea, although presenting the evidence for this conclusion is beyond the scope of this paper. It is apparent, however, that those countries generally had large capital inflows, lower inflation rates and lower monetary expansion rates than they did in earlier years, budgets in near balance, growing foreign-exchange reserves, and structural improvements of many sorts underway. It should not be surprising, therefore, that confidence in their ability to manage exchange rates remained high for a long time.

Money, Prices, and Exchange Rates

Potential trouble for Mexico's policy of managing the exchange rate showed up early in consumer prices. Although Mexico's inflation *rate* fell toward the U.S. inflation rate, the *level* of Mexican consumer prices continued to rise in relation to the level of U.S. consumer prices (Meigs 1997: 40, Fig. 2). Friedman noticed the growing spread between Mexican and U.S. consumer prices in 1992. So did Mexican consumers. By November 1994, Mexican consumer prices had risen

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187 percent following adoption of the pegging policy in February 1988, while U.S. prices had risen 29 percent. (Widening the exchange-rate-target band offset some but not all of the growing disparity in price levels.)

The gap between prices of Mexican and U.S. consumer goods indicated by comparing Mexican and U.S. indices actually was understated. Holding the exchange rate fixed or nearly fixed was equivalent to maintaining price ceilings on the imported goods included in the Mexican CPI. When the peso was allowed to float in December 1994, prices of those goods went up at a shocking rate, pushing the whole Mexican CPI upward.

Accumulating foreign exchange reserves to prevent appreciation of the exchange rate when capital flowed in increased the growth rate of Mexico's money supply, thus supplying upward pressure on Mexican prices and wages. Pressure to change the exchange-rate peg—as an alternative to putting more downward pressure on Mexican prices and wages—thus gradually increased. Furthermore, the direction of an eventual adjustment was clear; it could only go one way. All that was needed in order to start a run on the peso was some random political or external shock to investors' and speculators' expectations. That came in December 1994.

This highly compressed account of Mexico's experience leaves out many important details. However, despite the great differences in institutions and economic structures in Mexico and Asia, I believe it provides some useful lessons for analyzing the Asian crises and identifying some clues for investors to watch in the future.

I recommend the following lessons from Mexico for people trying to understand the currency crises in Asia:

- Do not concentrate on what the concerned central banks and governments could have done, or should have done, just before each crash. Seeds of the crises were planted years earlier when the decisions were made to peg exchange rates.
- Examine cumulative changes in domestic price levels relative to those in the country or countries to which currencies are pegged.
- Trace the effects of exchange-market interventions and changes in foreign-exchange reserves on national monetary bases and other monetary aggregates relative to their counterparts in the target country or countries. A long buildup of foreign-exchange reserves should be taken as a danger signal, rather than as a sign of strength, for governments and central banks trying to manage exchange rates.

Such simple lessons might help governments and central banks to avoid problems in the future. And they might help investors and

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speculators to avoid painful surprises if governments persist in trying to manage the unmanageable.

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Capital Mobility, Inflation, and Harmonization

William A. Niskanen

Financial rules and institutions should be evaluated in terms of their effects on the real economy. My brief paper makes three simple points:

- A global market for financial claims is a necessary but not sufficient institution to ensure the mobility of capital among nations or the protection of capital in one nation.
- A reduction of inflation *increases* economic growth within a few years.
- Global markets, in most cases, are better served by global competition in rule making rather than by global rules.

For some, these conclusions may seem so nonintuitive that they must be wrong. My guess is that, within several years, these conclusions will seem so obvious that people will wonder why they were ever at issue.

Mobile Capital and Capitalism

It is important not to let our thinking become captive to our rhetoric. Capital is the set of natural resources, hardware, software, skills, cultural attitudes, and institutions that increase output per worker. Most existing capital is not mobile unless it is quite literally on legs, wheels, wings, or can be transmitted electronically; most old capital is still vulnerable to exploitation by those who control the powers of government in the immediate area. New capital is increasingly mobile among nations only in that more people and firms are prepared to consider investing in some other nation.

In an important sense, however, capital is *less* mobile among nations than during the century prior to World War I. During much of that

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period Britain maintained a net capital outflow of over 5 percent of GDP, and much of that investment was in what we would now call developing countries. During the past few decades international capital flows have increased rapidly but are still a lower share of national output than a century ago, and most international investment is now among the developed countries. A study by Robert Zevin (1992: 51–2) of the U.S. Trust Company concludes that "every available description of financial markets in the late nineteenth and early twentieth centuries suggests that they were more fully integrated than they were before or have been since." The difference is that the set of conditions that attract investment—secure property rights, low and nondiscriminatory taxes, limited and transparent regulation, etc.—are *less* widespread than a century ago even if somewhat broader than a few decades ago.

Most of what we call capital today, however, is not capital but various types of financial claims to capital. And indeed, the market for these financial claims is increasingly global; many of these financial claims can now be marketed in many nations almost instantaneously and at a declining transactions cost. The breadth and efficiency of financial markets are important to economic performance, but the state of the financial markets should not be confused with the state of the capital markets. A stock exchange is often regarded as the symbol of a capitalist economy but may be only "a field of dreams" unless the other conditions are in place to attract investment in that economy.

The globalization of financial markets will make the price of similar financial claims more nearly uniform among countries and is a proper focus of attention by financial entrepreneurs and financial economists. By itself, however, the globalization of financial markets will have little effect on the monetary, fiscal, and regulatory policies of individual governments. The increased mobility of *capital* among nations, however, will severely discipline the ability of governments to impose costs on the owners of capital that are higher than the value of the services provided by the government. This is likely to lead to some leveling down in the discriminatory taxation and regulation of capital and some shift of taxation to less mobile labor. For that reason, many governments will oppose the conditions that increase the mobility of capital. For that reason, any government that promotes the conditions that attract investment creates a worldwide public good for the owners of capital in all nations. For that reason, the prospect for maintaining a capitalist economy in one nation depends on the opportunities to invest in other nations.

Death of the Phillips Curve

The reduction in the inflation rate in the G-7 countries, I suggest, is primarily a consequence of a condition that economists do not

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understand very well—learning from one's own experience and that of others. Specifically, my sense is that most politicians have finally learned that there is no long-run Phillips Curve. Indeed, the U.S. experience suggests that the unemployment rate is a *positive* function of the inflation rate within several years. My own simple estimates suggest that the current U.S. unemployment rate, as expected, is a negative function of the current inflation rate, but is a stronger positive function of the inflation rate and the unemployment rate in the prior year; this implies that the unemployment rate is a weak *positive* function of any steady-state inflation rate.[1] This result is consistent with the hypotheses that any inflation reduces the signaling efficiency of changes in relative prices and that people spend time and real resources to hedge against inflation.[2]

The reduction in inflation is a result of increased independence of the central banks and of market forces, I suggest, only in that learning has led politicians to cede greater authority to their central banks and that the market response to prior monetary policies contributed to the necessary learning.

The Danger of Harmonization

On the case for international harmonization of financial regulations and accounting standards, I am very suspicious. The Basle standards on bank capital, approved in 1988 by a cartel of central bankers and fully implemented by the end of 1992 without any domestic review or legislative authority, are my case in point. These standards, I suggest, were (and are) both unnecessary and ill conceived. In the United States, these standards contributed to a massive substitution of U.S. government securities for commercial and industrial loans by commercial banks that continued through 1993—a condition that probably contributed to the strange recession of 1990–91, the weak early recovery, and the election of Bill Clinton. The Basle standards were the

[1]For the 40-year sample, 1954–73 and 1977–96, for example, a least-squares regression yields the following estimate:

$$U = 2.353 - .677I + .862I_{-1} + .479U_{-1}$$
$$\quad (.407) \quad (.110) \quad (.114) \quad (.068)$$

$\bar{R}^2 = .832$, S.E.R. = .583, D.W. = 1.922, where

U = the unemployment rate for civilian workers, and

I = the inflation rate; GDP implicit price deflator used for 1954–59, and GDP chain-linked price deflator for 1960–96.

A regression on the later 20-year sample yields almost identical estimates and a much tighter fit.

[2]A recent report of the U.S. Joint Economic Committee summarizes a number of other studies with similar conclusions (Keleher 1997).

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wrong response to a real problem—the conflict between national deposit insurance systems and the regulation of the capital standards of foreign banks by their home country governments. Instead of applying a national treatment standard to banks, the standard to which foreign firms in other industries are subject, the cartel of central bankers chose to implement international bank capital standards that eliminated any competition in the setting of standards and conveniently restricted the penetration by Japanese banks in the U.S. and European financial markets.

Some international harmonization of accounting standards seems equally unnecessary but less threatening. Any lender has the authority to ask that the accounts of a would-be borrower be prepared to a specific standard as a condition for approving a loan. Similarly, any government has the authority to require that any bank seeking deposit insurance maintain its accounts to a specific standard as a condition of providing deposit insurance. The primary effects of an internationalization of accounting standards would be to facilitate the international micromanagement of banks and the empirical research by financial analysts.

Those who promote international financial and accounting standards play on a genuine concern about the international financial effects of a severe financial problem in one country. On the surface, these effects seem too small to merit the measures considered. In recent years, for example, Japan and Mexico have each experienced a severe financial problem with few effects in other countries other than on those who had purchased the securities of these countries. Although this observation seems to have been refuted by the recent "Asian financial crisis," I still believe that the contagion effects of a financial crisis in one country are generally small. As expected, the International Monetary Fund is trying to reinvent itself again—in this case to manage the international response to these national problems. So far, fortunately, no one else seems very interested in the IMF proposal.

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Monetary Policy in the 21st Century: An Impossible Task?

Kevin Dowd

One of the most obvious trends over the last two decades has been the gradual erosion of central bank power by market forces. Central banks are operating under ever tighter constraints as financial markets become more integrated and more efficient, and as capital itself becomes more mobile and currencies become better substitutes for each other. Now, more than ever, central banks need to ensure that they carry the markets with them if their policies are to have any chance of success. If they fail to do so—if they engage in ill-judged attempts to manipulate interest rates or exchange rates, for example—they leave themselves open to withering speculative attack on a scale that no central bank can withstand. As recent experience has shown, the financial markets impose swift and merciless punishment on governments and central banks who try to defy them. Monetary policy has never been so constrained since the collapse of the Bretton Woods system in the early 1970s.

A New Threat to Monetary Policy: The Falling Demand for Central Bank Money

Central bankers also face a new and more dangerous threat. Long-run factors—technological ones, in particular—will not only further reduce the effectiveness of monetary policy, but are likely to destroy it altogether. These new developments threaten to reduce the demand for central bank money (the monetary base) to a level where the central bank's leverage over the monetary system—its ability to influence interest rates, exchange rates, and the money supply—effectively disappears.

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One form of base money consists of the deposits held by commercial banks for reserves or clearing purposes. However, the general trend of technological progress is already leading banks to operate with declining reserve ratios. There is also considerable competitive pressure on banks to reduce the costs of their holdings of base money. That pressure is intensified by competition from banks in other jurisdictions that are no longer obliged to satisfy minimum reserve requirements,[1] and also by financial innovations and developments in technology that give banks reserve and clearing media that are superior to central bank deposits.[2] It is therefore quite likely that bank demand for base money will fall to very low and possibly negligible levels over the foreseeable future.

The other form of base money consists of the cash held by the public for day-to-day transactions purposes. However, the public demand for cash is also likely to fall as electronic substitutes for cash become more sophisticated and more widely available (Browne and Cronin 1997). Indeed, the displacement of cash by electronic alternatives is already a well-established fact (Humphrey, Pulley, and Vesala 1996: 936) and is certain to go much further. The competition has reached the point where a number of central banks are now actively encouraging the use of electronic substitutes for cash to cope with the problems raised by the increasing sophistication of counterfeiters (Harrop 1996).

Implications of a Declining Demand for Base Money

The declining demand for base money causes major problems for central bankers. First, and most obvious, it means that base money will become increasingly insignificant as a component of the money supply. However, as base money becomes less significant, it will gradually lose its effectiveness as a channel through which the central bank can influence the broader monetary system. The fulcrum on which the monetary policy lever operates will erode away and make monetary policy less and less effective as time goes on.

Second, as the demand for base money falls, the central bank must ensure that the supply of base money also falls to avoid a major

[1]In Great Britain, for example, minimum reserve ratios were abolished in August 1981. The Bank of England had originally wanted to maintain them, but bowed to pressure from the commercial banks who argued that they would otherwise lose Eurocurrency business to non-British jurisdictions (Hall 1983: 171).

[2]For example, banks could settle interbank debts by transfers of mutual fund shares instead of writing checks against deposits at the central bank. The banks would then earn the return on the portfolios in which the mutual funds invest, instead of the (usually much lower) interest on central bank deposits.

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inflation. If the demand for base money falls while its supply remains the same, the only way the market for base money can clear is for the value of base money (i.e., the value of the currency) to fall. To avoid that outcome, the central bank must reduce the supply of base money—a difficult and historically unprecedented task.[3] Such a policy would also create other problems for the central bank: it would force the central bank to buy its own currency back, the revenue from money creation (seigniorage) would become negative, and many (perhaps all) central banks would become bankrupt and need to be bailed out.[4]

Finally, the decline in the demand for base money would make prices and interest rates more vulnerable to external shocks and, in particular, to changes in the technological and other factors that influence the demand for currency.[5] To give but one example, suppose at some future date people all wake up one morning and find that a new development in e-money technology is about to make paper currency redundant. National currency would suddenly become a hot potato to be gotten rid of as quickly as possible. People would then rush to unload their cash holdings while currency still had some value, and in the process the value of currency would plummet—that is, the price level would rapidly rise. This scenario of e-money-induced hyperinflation may sound farfetched, but it is not altogether implausible. Of course, the price level also would be vulnerable to other, less dramatic changes in e-money technology.

If the demand for base money in the United States became negligible, dollar prices in the United States would become entirely dependent on the foreign demand for U.S. currency, and the U.S. price level would become hostage to whatever (largely uncontrollable) factors influence the foreign demand for dollars. Any factors that reduce that demand—for example, the successful remonetization of the former

[3]Among other things, the central bank must estimate the demand for base money and then make monetary management decisions conditional on those estimates, and therefore conditional on errors in those estimates. At the same time, the bank would have to take account of the estimated demand for the monetary base while continuing with the interest-rate, price-level, or exchange-rate targets it already had. The central bank's task, therefore, would become considerably more difficult than it already is under a fiat-money regime.

[4]In the limit, the central bank would have to buy back most, if not all, of its currency issue. In most countries, those amounts clearly exceed the value of central bank assets. Most central banks would therefore need their governments to bail them out if they were to avoid bankruptcy.

[5]An interesting analogy is with the historical gold standard, where the price level was vulnerable to changes in any factors that affected the supply of gold. Changes in the technology of gold extraction could and did have significant effects on the price level. A notable case in point was the development of the cyanide extraction process in the late 19th century, which helped fuel major increases in the price level between 1896 and 1914.

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Soviet Union, which would lead citizens there to switch to local currencies, or the legalization of hard drugs, which would undercut much of the need to trade dollars in the black market—could then have devastating consequences for U.S. inflation. There is, of course, also the irony that the stability of the U.S. monetary system—and, hence, the health of the U.S. economy—would become very dependent on the activities of Colombian drug producers, the Russian mafia, and other unsavory elements.

In short, the central bank must come to terms with greater potential price instability just as its leverage (i.e., its ability to do something) gradually dissolves, and it will have to do so while buying back its own currency to prevent inflation and while earning negative seigniorage. At some point the central bank's task will clearly become impossible.

What Is to Be Done?

If the central bank can no longer manage the monetary system, it must give up the task and put the monetary system onto an automatic basis, and the only way to do that is to make the currency convertible again—that is, for the central bank to peg the price of its currency in terms of real goods or services. There are many types of convertibility, ranging from the old gold standard to more modern (albeit as yet untried) systems that aim to achieve price stability by pegging the prices of index-based financial derivatives.[6]

Serious thought would obviously have to be given to the type of system adopted, but convertibility has very definite benefits whatever precise form it takes. It puts the value of the currency on a sure footing, and thereby frees it from its dependence on the demand for base money, on the one hand, and central bank policy, on the other. Provided that private issuers are also free to issue currency of their own, the demand for central bank money can then fall to zero without

[6]For details, see Dowd (1994, 1995). Briefly put, the central bank would create a new type of financial instrument—a kind of price-level futures contract—and periodically peg its price at some par value. Arbitrage forces would then ensure that any resulting equilibrium was one with zero expected inflation. Adherence to this regime would therefore ensure that the expected price level remained roughly constant over time. The actual price level would then remain roughly constant, give or take a relatively small random error from one period to the next. This type of system would deliver the benefits of the gold standard (i.e., the benefits of an automatic discipline on the issue of currency), but without the potential disruptions that inevitably arise when the price level is tied to the vagaries of the gold market.

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any serious side effects.[7] Prices, interest rates, and exchange rates would no longer be dependent on the vagaries of e-money technology or the foreign demand for currency. At the same time, the central bank would no longer face the daunting prospect of decreasing the supply of base money; instead, the bank would merely need to stand ready (along with issuers of private currencies) to buy and sell its currency on demand at a fixed price. The central bank's supply of currency could then fall to zero without any noticeable side effects. The central bank also would become one currency issuer among many, and it should be manifestly obvious by that stage that no justification exists for giving any one currency issuer—the central bank included—a privileged status over others. Federal Reserve currency could then be retired and the central bank itself abolished. The provision of currency could then be left to the institution that was always best able to provide it anyway—the market.

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[7]If the demand for central bank currency fell to zero, the convertible regime would ensure that the supply of central bank currency also fell to zero in an accommodating manner. The potential nightmare of hyperinflation would not arise because the value of the currency would no longer be determined by the supply of central bank currency, but by the nominal anchor to which the new system was tethered. Provided the anchor was suitably chosen, the demand for central bank currency could then be allowed to disappear without any noticeable inflation.

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Dumb Networks and Smart Capital

Walter B. Wriston

More than 50 years ago there was a popular song that went, "O Baby, what I couldn't do with plenty of money and you." In those days what most of us thought of as money was limited to hard cash, travelers checks, and bank deposits. A few adventurous souls had a credit card of one kind or another, but their widespread use ran counter to our Depression culture, which decreed that one should save up to buy appliances. Having expended five years of our lives in the Second World War, my generation wanted the appliances now and was prepared to borrow the money to get them. This new attitude contributed to a sea change in the way many Americans looked at money, credit, and markets. The postwar boom at home and the expansion of trade abroad required broader and faster markets.

The Advent of a Network Economy

Today's global markets, which we now take for granted, did not arrive without some serious problems along the way. Immediately after the war, all markets and payment systems relied on manual systems. There were a few hand-cranked adding machines around and one of the largest departments in most banks was the messengers. In New York all interbank payments were settled by exchanging official checks at the New York Clearing House. By 1969, as the volume of payments increased, this system bogged down as there were simply not enough officers to sign the checks or messengers to deliver them. All this was long before the advent of the computer chip, and windows were something you looked out of. To solve this problem a whole new system had to be invented and put in place.

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In those days, before the advent of our current network economy, innovation was not thought to be as important as refining current practice, but the explosion of world trade and capital movements overwhelmed the old system, and no amount of refinement to a manual system could keep up with the growth of transactions. A new and innovative system was required, but old values and concepts die hard and often leave behind words that no longer describe what is happening in the real world today. In his book *The World As I See It*, Albert Einstein (1934: 83–84) wrote, "We have . . . forgotten what features in the world of experience caused us to frame [prescientific] concepts. . . . There is the further difficulty that our language is compelled to work with words which are inseparably connected with those primitive concepts."

By today's standards, the markets that existed immediately after World War II and for some 20 odd years thereafter were primitive. Few even remember that in 1968 the New York Stock Exchange choked and ground to a halt on 16 million shares a day. There were more than $100 million of unclaimed dividends floating in the market with no clear record of who owned them. Over 100 member firms, many of which were household names, went bankrupt and disappeared forever. We had to close the market on Wednesdays for six months and shorten the trading day by one hour on the other days. Those drastic restrictions gave a little group of six people, called BASIC, time to devise and implement fixes like the Depository Trust Company, the jumbo certificate, the placement of CUSIP numbers, and many other things that now constitute a good part of the modern stock market. When its work was done, the group being entirely private and unaffiliated with government, self-destructed. Interesting enough, no governmental agency was involved in this successful redesign. Today the talking heads on TV mention in passing that "trading was moderate" as 450 million shares changed hands. And the market today is capable of handling two-billion-share days.

Not only is the sheer volume of turnover today an order of magnitude different from yesterday, but telecommunications has so closely linked the world's nervous system that distant markets often move in sympathy with one another. On what has been called Black Monday (October 17, 1987), the New York Stock Exchange index dropped 22.6 percent, the Chicago Mercantile Exchange S&P Futures plummeted 28.6 percent, Japan's market dropped about 15 percent, Britain's stocks fell 11 percent, Sydney's were off 25 percent, and Hong Kong's free fall caused the authorities to close the market altogether.

Globalization in the Foreign-Exchange Market

A similar globalization has taken place in the foreign-exchange market. When I started at Citibank, our head trader estimated that

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the total turnover in the New York market was about $50 million a day. If the Federal Reserve wanted to influence the dollar rate, its trading desk could call Citibank or Morgans and place an order for $10 million, which was large enough to move the market. Today with the foreign exchange market at about a trillion dollars a day, central bank intervention can only result in expensive failure, as there is not enough money in any central bank to influence the exchange rate on anything but a momentary basis.

The markets that existed under the old Bretton Woods agreements were certainly not based on primitive concepts, but sometimes we use words like "fixed exchange rates" just as if that condition existed for more than what in historical terms constituted momentary pauses between devaluations. The pervasive inflation in many countries and the constant devaluations caused the eminent economist Yogi Berra to remark, "A nickel ain't worth a dime anymore." Today's floating rate system has reduced these pauses between changes in currency values essentially to zero. It is worthwhile to remember that in that so-called stable Bretton Woods environment there were hundreds of currency devaluations, great and small, which affected almost every currency in the world. Major currencies were not exempt; indeed, they led the way. For example, the devaluation of the British pound on September 19–20 in 1949, triggered devaluations by 15 nations ranging from Austria to India and South Africa. In November 1967, the British again devalued their currency by about 14 percent. In March the following year, the central banks of the world created a two-tier market for gold: one price for official transactions and one for private transactions. In August 1969, it was France's turn and the franc was devalued by about 11 percent. The next September Germany allowed the D-Mark to float and in October revalued it by 9 percent.

The reason to recite this very cursory list of revaluations and devaluations is to suggest that what is often remembered as stable exchange rates in the days of Bretton Woods were stable only in relation to floating rates and then only in some parts of the world. There were collars on rates that limited both upside and downside mouvements, but when economies diverged pressures became too great and the collars were adjusted time and again. Since so much scholarly work on this subject is oriented toward Europe, many forget that in Latin America there were constant revaluations almost too numerous to count.

The Marriage of Computers and Telecommunications

Today we have a wholly new situation. The marriage of computers with telecommunications has created a truly global market in every-

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thing from money to stocks to commodities. The magnitude of the change is illustrated by the fact that today "All the world's businesses spend more on telecommunications each year than they do on oil" (Maass 1997: 134). Indeed this capital investment has provided the world with a new kind of energy. These huge networks—public and private—have even created a new kind of an economy, a network economy in which the law of increasing returns operates: the more people connected to the network or the clearinghouse, or your fax machine, the more valuable it becomes.

Emergence of the Eurodollar Market

Perhaps the beginning of a truly global market was triggered by America's desire to maintain price controls on interest rates. The Federal Reserve's Regulation Q, which prevented American savers from getting a fair return on their savings, also prevented foreigners from getting world rates on dollar deposits. Since most foreign countries did not have such interest rate controls and their banks routinely took foreign currency accounts, the conditions were ripe for the birth of the Eurodollar. The market gravitated toward London because of the City's reputation for maintaining a free market. Indeed when controls were put on sterling, the Bank of England left the Eurodollar market alone.

The advent and explosive growth of the Euromarket empowered by telecommunications permitted people around the world to get a fair return on their dollars, with the added benefit of keeping them outside the United States away from possible seizure. The market grew exponentially and has become the greatest floating pool of capital in the history of the world. This so-called stateless capital did not please everyone. A high official of the United States journeyed to London in 1979 to publicly urge at a meeting of the International Monetary Conference that reserve requirements be put on Eurodollars. At that public meeting the head of the Swiss National Bank arose and said that he for one would never do that as it would "disadvantage" the banks in his country. The British took a similar stance and so the market has grown to a point that it has taken on a life of its own.

The Network Economy: A Complex Adaptive System

It can be argued that the speed and size of these global markets today have created a difference in kind and not just in degree from markets in the past. After all it is speed alone that transforms a harmless piece of lead into a deadly bullet or a group of still pictures into a motion picture. The speed, size, and complexity of the market made possible by the convergence of computers and telecommunica-

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tions has had and is having a profound effect on the world we live in. Nicholas Negroponte (1995: 6) went even further when he opined, "Computing is not about computers any more. It is about living." And certainly markets of all kinds impact all our lives. Since markets are basically driven by information about money or stocks or commodities, the instant and almost universal availability of this information makes the modern Reuters or Bloomberg screen light up in a way that is different in kind from smaller, slower, and more primitive times.

The global market today might be described as the very model of what has become known to scientists as a complex adaptive system. The agents, or people who influence the system, range from learned central bankers to 21-year-old traders at some small merchant bank. The agents in the global market are numbered in the millions, each having his or her own agenda and interacting in ways to produce a result that cannot be predicted. When the pundits on the evening news explain why the dollar is strong or weak, or why the stock market went up or down 120 points, they advance the limits of creative writing but not necessarily our understanding.

These great complex systems are nonlinear and tend to resemble biological rather than mechanical systems. In these systems, chaos theory postulates that small events tend to have large consequences over time. The classic example is that of a butterfly moving its wings over China affecting the weather weeks later in Wisconsin. The global market exhibits some of these characteristics. Despite massive work by the Santa Fe Institute and many others, we do not know just how these complex systems work. As Mitchell Waldrop (1992: 11) put it, "The marketplace responds to changing tastes and lifestyles, immigration, technological developments, shifts in the price of raw materials, and a host of other factors."

The Possibility of Systemic Failure

Because of all these unknowns, as the global money markets grew and speeded up it was every regulator's—and every participant's—nightmare as to what would happen if a small event like the failure of a bank somewhere severed the weakest link in the payment chain. If that happened, would the music stop and the whole system come crashing down? Or, to use a Washington term, would we have a systemic failure?

This nightmare came true on a Friday afternoon, June 28, 1974, triggered by the failure of a small German bank called Bankhaus, I.D. Herstatt, K.G.a.A. By coincidence that Friday afternoon there was a retirement party going on for the senior credit officer of Citibank,

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Mr. Lester Garvin. A group of us were in his office drinking champagne from paper cups and wishing him well when the phone rang with the news that the Chase Manhattan Bank, which was acting for Herstatt, had stopped all payments into the Clearing House Interbank Payments System (CHIPS), which then ground to a halt. The party in Mr. Garvin's office was of short duration. The main problem was how to restart the system and let the payments clear so that the participants in the world's banking system would know what their liabilities were. As the evening wore on we learned that the German banking authorities at about 10:30 a.m. Eastern Standard Time had closed down Herstatt.

All the banks that were players in the world market enjoyed a line of credit from other banks. These lines of credit were necessary because quite often payment orders arrived when there was not enough money in an account to cover them. Money would flow into the account from many different areas—from money transfers from the Federal Reserve, from other banks, from the payment of maturing credits, or a dozen different sources. In the meantime, the payments were made by creating an overdraft, the allowable size of which was governed by the credit line. If all worked well, the overdraft was eliminated during the day as payments flowed in—if payments did not arrive, the overdraft continued, creating a credit risk and possible loss.

The German central bank, the Bundesbank, in the spirit of free enterprise, decided to let Herstatt fail, which I believe was the correct decision. As in all disasters, fate played an important role. While the Bonn office of Herstatt had already closed, the Frankfurt office was still open and an officer from Citibank Frankfurt hand-carried the papers to collect a spot foreign-exchange payment. He searched in vain for people to talk to, but the place was deserted. The staff had all left to watch the World Cup soccer matches and never completed the clearing so our officer returned empty-handed.

Back in New York the immediate solution to the problem appeared to us to be quite simple, and that was to permit any bank to return payments for 24 hours after the date on which they were made, in the same manner that a Clearing House bank had 24 hours to return a bad check which was drawn upon it. This simple device gave everyone confidence that they would be able to unravel anything that came along and enough time to do so. The rule required all participants in the system to honor all payment orders and permitted them to recall any the next morning if they had not received funds to cover them. CHIPS started up on Monday and operated smoothly and successfully, but the British banks and some other Europeans took violent exception to the fact that the payments through the CHIPS system were not

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final until 24 hours after they had been implemented. Long roller-towel cables appeared on the desks of bankers in New York alleging that Eurodollar payments in London were "final" even though everyone knew that the payments could not be final until they were debited or credited to an account in New York.

As long as the sun rises in the East and sets in the West, there will be a five- or six-hour time difference between London and New York, and that time span between London payments and final settlement in New York constitutes the credit risk. In today's world almost anything can happen in six hours, or six minutes.

Back in New York bankers set to work to build more and more safeguards into the CHIPS system with reciprocal credit lines and such other devices to limit the liability of any one bank. As of January 3, 1997, CHIPS now has in place procedures to cover the simultaneous failure of the two largest participants at their largest net debit position, and still fulfill its clearing function. It is interesting to note that no government agency was involved in any aspect of the Herstatt crisis. It was handled entirely by the New York Clearing House.

A Sea Change in the Global Monetary System

The development of the global market I have sketched was occurring contemporaneously with a sea change in the world's monetary system. For the first time in history, no major currency is tied directly to a commodity like gold or silver. In 1911, long before the advent of information technology, Irving Fisher opined that "irredeemable paper money has almost invariably proved a curse to the country employing it" (Fisher 1911: 131). He certainly had history on his side. The advent of the Gold Standard and the Gold Exchange Standard furnished for a time a discipline on the creation of money, but now with the uncoupling of money from any commodity, those old arrangements have been replaced by an even more draconian device which I call the Information Standard. This new discipline is being administered by a completely new system of international finance.

The Information Standard

Unlike all prior arrangements, this new system was not built by politicians, economists, central bankers, or finance ministers. No high-level international conference produced a master plan. The new system was built by technology. While clearing systems reside in real buildings, the new world's financial market is not found on any map, but consists of more than 200,000 electronic monitors in trading rooms all over the world linked together, and the value of any currency is

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determined by the price that the market will pay for it in exchange for another. Whatever price the market puts on a currency, it is almost constantly being condemned by someone somewhere as too high and by someone somewhere else as too low. Few governments are entirely satisfied with the value the market places on their currency. Someone is always demanding that government do something to push the value of its currency up or down, depending on how one's interests are affected. But the market is so huge that intervention by central banks has become an expensive exercise in futility. Indeed, the market has overpowered one of the most important aspects of national sovereignty. Peter Drucker (1993: 143) put it this way: "Control over money was at the very center of what came to be called 'sovereignty.' But money has slipped the leash. . . . It cannot be controlled any longer by national states, not even by their acting together." Indeed, moments after the president makes a statement in the Rose Garden, thousands of screens light up, and traders all over the world vote on whether the new policy is good or bad. That vote is instantly recorded in the value of the currency. There is no longer any place to hide. Good economic policies are rewarded and bad ones punished.

The recent experiences in Thailand and Malaysia are only two of dozens of examples. No matter what the politicians and the spin masters of the world say, the market will remain a giant voting machine that records in real time, real world evaluations of the value of currencies. Increasingly, currency values reflect less the power and privileges of the sovereign as much as a discipline on the economic policies of imprudent sovereigns.

Digital Cash

Just as the realization grows that the global market has moved from rhetoric to reality and that the Information Standard has replaced the gold-exchange standard, we are faced with another new situation—the advent of multiple forms of digital cash on smart cards and on the Internet. As in ancient times, anyone can announce the issuance of his or her brand of private cash and then try to convince people that it has value. There is no lack of entrants to operate these new private mints ranging from Microsoft to Mondex, and more enter every day. While e-cash is not legal tender, it is nonetheless being accepted in payment by ordinary people. If people believe that bits and bytes arranged in a certain way have value, it can be argued that what they pay and receive is money. This trend poses complex new policy problems for us all. "A commerce whose primary form of money is data," David Bollier (1997: 27) has written, "alters many of the implicit assumptions we have about contemporary organizations."

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Today when money laundering is a major activity for drug lords, and, it is said, for some political contributions, some forms of e-cash present major problems for law enforcement officials. Governments will want audit trails, but individuals may want privacy. While large money transfers are presently encrypted, the widespread use by individuals of cyphers with good security, which used to be the exclusive province of the sovereign, poses new public policy questions. The intersection where the advocates of individual privacy meet the guardians of national security is a hotly contested area. "Privacy," in the great phrase of Kevin Kelly (1994: 212), "is a type of information that has its polarity reversed." With good security freely available on the Internet and in many places overseas, our government's efforts to block its widespread use is a losing game. Of course an old-fashioned letter with no return address offers great security and privacy, but is unsuited to the kinds of volumes and velocity required by global commerce.

The legal situation of venue on the net is also murky. No consensus has emerged as to what nation's laws would apply for transactions in cyberspace. As a recent U.S. Treasury study dryly put it, "Nation states may find unilateral enforcement of electronic money-related rules difficult" (U.S. Treasury 1996: 33). Since any product of the mind can be communicated as a stream of digital bits, the situation grows more complex. One thing is certain: at the end of the day the value of a currency rests on the productive capacity of the people who use it. In today's world that productive capacity rests, to a large extent, on the fact that information applied to work is creating wealth. As Bill Frezza (1997: 32) has pointed out, if ordinary people are able to create and exchange wealth on the Internet, "the underlying products of their creative output upon which the value of money will be based may never exist in the physical world. And since that wealth may not have to be exchanged for government fiat currency in order to be useful, there may be scant opportunity to seize it." It is not beyond the realm of possibility that counterfeiters of e-cash could create their own mints, that hackers can and will break encryption systems said to be secure, and that tax collectors will be frustrated as they attempt to move through cyberspace.

Eroding the Power of the State

The global market is just one reflection, albeit a powerful one, of a sea change in the world economy. The huge and swift movement of funds across national borders creates novel problems for sovereigns. Reduced to its simplest terms, the actions of governments are becom-

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ing more and more transparent. While many things still go on behind closed doors, economic policy initiatives are almost instantly detected and appear on thousands of screens around the world. Since there is some finite amount of money capital in the world, and an unlimited number of places and ways to employ it, it moves toward the perceived optimum blend of risk and return. Even in the new network economy, which clearly operates with some new rules, that old rule has not changed. Put another way, capital goes where it is wanted, and stays where it is well treated. It will flee onerous regulation and unstable politics, and in today's world technology assures that that movement will be at near the speed of light. Despite thick tomes of theory on capital movement, that is "all she wrote." No amount of rhetoric or spin control will fool capital for long. The global market in information is so pervasive, so fast, and so efficient that it will quickly reflect where capital is wanted and well treated and where it is not.

It is useless to protest the workings of the market's Information Standard because, unlike previous systems, no nation can opt out of the system by holding a press conference. No matter what the officials say, the screens will continue to light up, traders will make judgments. The technology that constitutes the network will not go away. Indeed it will only get better in accordance with Moore's law. The network itself will also get bigger and faster. Mathematicians have shown, at least to their own satisfaction, that the sum of a network increases by the square of the number of members. Today there are some 200 million computers in the world and Andy Grove of Intel believes in another five years there may be 500 million. Whether these estimates prove to be right or wrong, certainly the trend is clear.

There are yet other kinds of networks gnawing away at the power of the state: one created by business alliances and another by private interest groups ranging from the International Red Cross to Save the Whales. The network economy has spawned tens of thousands of these transnational business alliances that have no common pattern. In today's parlance, an alliance can mean anything from full mergers to just a handshake to cooperate, and everything in between. Their growing importance is illustrated by the fact "that one third of world trade represents exchanges between parent companies and their foreign affiliates and another third between companies involved in cross-border strategic alliances" (*The World Paper* 1997: 1). The electronic networks permit distributed manufacture, and today few if any products contain components made in only one nation. While sovereigns posture on trade policy, these business networks are beginning to operate almost independently of trade policy. As far as I know, there is no central database to tell us where and how many such alliances

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are operating, so their power to move production from one area to another cannot be quantified, but it is huge and growing.

The nervous system of the global market is supplied by the public and private networks, the long-distance companies, the miles of fiber and copper, and the rings of satellites that girdle the globe. The information that moves through that nervous system comes from sources too numerous to count and constitutes everything from the latest joke to pronouncements of political leaders. Largely based on that information, money and capital moves at near the speed of light toward opportunity and away from turmoil. Because this global market is a complex adaptive system, predictions about how it will develop and act and react to events in the future is difficult, if not impossible, to predict. What is possible to predict is that the technology upon which the market is based will not only not go away, but it will get better and faster and easier to use.

Conclusion

The infrastructure of the market has no bias one way or the other—the network is dumb, only the owners of capital are smart. Governments are not always happy about what markets tell them, indeed, as George Shultz (in Shultz and Dam 1977: 193) wrote, there is "almost universal skepticism in political and governmental circles about market solutions to major problems." People look for neat, perfect solutions, but as the English commentator Frank Johnson remarked, "In politics Utopia is always an important country, always one of the great powers." In the real world Utopia does not exist, so some mechanism must be able to absorb the unexpected shocks that will certainly occur, and so far the market has had the best track record in handling these events, ranging from the oil shock to the Gulf War. Markets will sometimes undershoot or overshoot, and it may take time to restore equilibrium, but unlike governments, which are reluctant to admit mistakes, markets adjust for their mistakes quickly.

Global markets have morphed the world into a network economy that is changing the world at a pace undreamed of just a few years ago. All change is unsettling, but the speed of this change is compressing Joseph Schumpeter's dictum of "creative destruction" in time and expanding its space. The process is irreversible. The networks only speed this process, and nations and companies can only ignore this sea of change in the way the world works at their peril.

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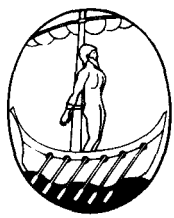

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TOO LITTLE VERSUS TOO MUCH GOVERNMENT

Government is like a prehistoric monster that cannot adapt itself to a changing environment. It nationalises and regulates and taxes and borrows and inflates not only too much but also too long. It continues its overcorrections for years and decades after they have been outdated because it is reluctant to yield the political power for which politicians have entered politics. Overcorrection creates barnacles of vested interests that obstruct the withdrawal of government from controls which sustain them.

The people would fare better with too little than with too much government because they would learn from their early mistakes more than from the mistakes of government. Early mistakes in spontaneous education, medical care, housing and pension schemes would have been corrected more easily and sooner than the many and repeated mistakes of the Welfare State, not least because government hides its mistakes more easily than can suppliers surrounded by competitors or disciplined by potential competitors ready to take their place. Government as supplier has proved to be the enemy of the people; in the market competing suppliers are its friends against the rogue-elephants.

—Arthur Seldon

The State Is Rolling Back
(London: E. & L. Books in
association with The Institute
of Economic Affairs, 1994), 318.

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